



STEVEN L. BESHEAR  
GOVERNOR

ENERGY AND ENVIRONMENT CABINET  
DEPARTMENT FOR ENVIRONMENTAL PROTECTION  
DIVISION OF WATER  
200 FAIR OAKS LANE  
FRANKFORT, KENTUCKY 40601  
[www.kentucky.gov](http://www.kentucky.gov)

LEONARD K. PETERS  
SECRETARY

**FACT SHEET**

**KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM  
PERMIT TO DISCHARGE TREATED WASTEWATER  
INTO WATERS OF THE COMMONWEALTH**

KPDES No.: KY0091782      Permit Writer: Mahmoud Sartipi      Date: March 18, 2009  
AI No.: 3013

1. **SYNOPSIS OF APPLICATION**

a. Name and Address of Applicant

Mason County Fiscal Court  
219 Stanley Reed Court  
Maysville, Kentucky 41056

b. Facility Location

Maysville-Mason County Landfill  
7055 Clarkson-Sherman Road  
Maysville, Mason County, Kentucky 41056

c. Description of Applicant's Operation

Solid Waste Landfill

d. Production Capacity of Facility

Not applicable.

e. Description of Existing Pollution Abatement Facilities

Outfalls 00A, 002 thru 008 - Storm water runoff are treated in sediment basin prior to discharge.  
Outfall 009 - Storm water runoff and leachate are treated by stabilization and sedimentation.

f. Permitting Action

This is a reissuance of an individual KPDES permit to an existing solid waste landfill facility (SIC 4953).

2. **RECEIVING WATERS**

a. Receiving Water Name

Outfalls 00A, 002 through 008 - Middle Run to North Fork of Licking River  
between mile points 0.85 and 1.9.  
Outfall 009 - Unnamed tributary to Stone Lick Branch at mile point 0.6.

b. Stream Segment Use Classifications

Warmwater Aquatic Habitat, Primary and Secondary Contact Recreation, and  
Domestic Water Supply

c. Stream Segment Antidegradation Categorization

High Quality Water

d. Stream Low Flow Condition

At the point of discharge, the 7Q10 and the Harmonic Mean for Middle Run  
and the unnamed tributary of Stone Lick Branch River are 0.0 cfs and 0.0  
cfs, respectively.

At Falmouth Water Department intake, the nearest downstream public water  
supply, the 7Q10 and the Harmonic Mean for the Licking River are 70 cfs  
and 584 cfs, respectively.

### 3. REPORTED DISCHARGE AND PROPOSED LIMITS

Description of Discharge - Outfall 00A- Storm water runoff

Effluent Characteristics	Reported Discharge		Proposed Limits		Applicable Water Quality Criteria and/or Effluent Guidelines
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Flow (MGD)	0.001683	0.004	Report	Report	401 KAR 5:065, Section 2(8)
Chlorides (mg/l)	25.5	39.4	Report	Report	401 KAR 5:065, Section 2(8)
Sulfate (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Organic Carbon	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Sodium (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Specific Conductance (umho/cm)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Antimony (mg/l)	0.004	0.009	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Arsenic (mg/l)	0.003	0.005	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Beryllium (mg/l)	0.002	0.002	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Cadmium (mg/l)	0.002	0.002	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Chromium (mg/l)	0.00475	0.013	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Copper (mg/l)	0.0058	0.017	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Lead (mg/l)	0.006	0.01	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Nickel (mg/l)	0.007	0.021	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Selenium (mg/l)	0.002	0.002	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Thallium (mg/l)	0.002	0.005	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Zinc (mg/l)	0.059	0.09	NA	Report	401 KAR 5:065, Section 2(8)
Hardness (AS mg/l of CaCO <sub>3</sub> )	298	480	NA	Report	401 KAR 5:065, Section 2(8)
Total Purgeables (µg/l)	6.1	9.4	NA	Report	401 KAR 5:065, Section 2(8)
Biochemical Oxygen Demand (mg/l)	78	78	NA	Report	401 KAR 5:065, Section 2(8)
Total Suspended Solids (mg/l)	370	1388	NA	100	401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Iron (mg/l)	8.36	29.6	NA	4.0	401 KAR 10:031, Section 6
pH (standard units)	7.67	9.44	6.0 (min)	9.0 (max)	401 KAR 10:031, Section 4(1)(b)

The data contained under the reported discharge columns is from the analysis of the DMR data that has been reported during the term of the current permit.

4. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 00A - Storm water runoffs from covered areas of solid waste landfill

b. Effluent Characteristics

Total Recoverable Cadmium	Total Recoverable Iron	pH
Total Recoverable Selenium	Total Recoverable Arsenic	Flow
Total Recoverable Antimony	Total Recoverable Zinc	Hardness
Total Purgeable Halocarbons	Total Recoverable Lead	BOD <sub>5</sub>
Total Recoverable Beryllium	Total Recoverable Copper	Chlorides
Total Recoverable Chromium	Total Recoverable Nickel	TSS
Total Recoverable Thallium		

c. Pertinent Factors

None

d. Monitoring Requirements

Instantaneous flow measurements shall be collected once per month.

Total Suspended Solids, BOD<sub>5</sub>, Iron (TR), Chlorides, and pH shall be monitored once per month by grab sample. Antimony (TR), Arsenic (TR), Beryllium (TR), Cadmium (TR), Chromium (TR), Copper (TR), Lead (TR), Nickel (TR), Selenium (TR), Thallium (TR), Zinc (TR), Total Purgeable and Hardness shall be monitored once per quarter by grab sample.

e. Justification of Limits

The Kentucky Administrative Regulations (KARs) cited below has been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes (KRSs).

Flow, Antimony (TR), Arsenic (TR), Beryllium (TR), Cadmium (TR), Chromium (TR), Copper (TR), Lead (TR), Nickel (TR), Thallium (TR), Selenium (TR), Zinc (TR), Total Purgeables, Chlorides, BOD<sub>5</sub> and Hardness

The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(8).

Total Suspended Solids

The limits and requirements for this parameter are consistent with the requirements of 401 KAR 5:080, Section 1(2)(c)2. These limits are representative of the Division of Water's "Best Professional Judgment" (BPJ) determination of the "Best Practicable Control Technology Currently Available" (BPT) and "Best Available Technology Economically Achievable" (BAT) requirements for these types of discharges.

pH and Total Recoverable Iron

The limits and requirements for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4 (1)(b) and 401 KAR 10:031, Section 6.

Total Organic Carbon, Sodium, Sulfate and Specific Conductance,

The removal of these parameters from the permit is consistent with 401 KAR 5:080, Section 1(2)(c)2. A review of the DMR data for the previous permit indicated that reasonable potential did not exist for these parameters to be limited or monitored in the permit. Therefore, it is the "Best Professional Judgment" (BPJ) of the Division of Water that these parameters be removed from the permit.

## 5. REPORTED DISCHARGE AND PROPOSED LIMITS

Description of Discharge - Outfall 002- Storm water runoff

Effluent Characteristics	Reported Discharge		Proposed Limits		Applicable Water Quality Criteria and/or Effluent Guidelines
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Flow (MGD)	0.0024	0.004	Report	Report	401 KAR 5:065, Section 2(8)
Chlorides (mg/l)	54	111	Report	Report	401 KAR 5:065, Section 2(8)
Sulfate (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Organic Carbon	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Sodium (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Specific Conductance (umho/cm)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Antimony (mg/l)	0.002	0.002	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Arsenic (mg/l)	0.00233	0.003	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Beryllium (mg/l)	0.002	0.002	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Cadmium (mg/l)	0.002	0.002	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Chromium (mg/l)	0.00225	0.003	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Copper (mg/l)	0.002	0.002	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Lead (mg/l)	0.002	0.002	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Nickel (mg/l)	0.00233	0.003	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Selenium (mg/l)	0.002	0.002	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Thallium (mg/l)	0.00067	0.001	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Zinc (mg/l)	0.0087	0.087	NA	Report	401 KAR 5:065, Section 2(8)
Hardness (AS mg/l of CaCO <sub>3</sub> )	263	270	NA	Report	401 KAR 5:065, Section 2(8)
Total Purgeables (µg/l)	5	5	NA	Report	401 KAR 5:065, Section 2(8)
Biochemical Oxygen Demand (mg/l)	9.25	20	NA	Report	401 KAR 5:065, Section 2(8)
Total Suspended Solids (mg/l)	202	616	NA	100	401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Iron (mg/l)	5.54	13.4	NA	4.0	401 KAR 10:031, Section 6
pH (standard units)	7.16	7.57	6.0 (min)	9.0 (max)	401 KAR 10:031, Section 4(1)(b)

The data contained under the reported discharge columns is from the analysis of the DMR data that has been reported during the term of the current permit.

6. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 002 - Storm water runoffs from covered areas of solid waste landfill

b. Effluent Characteristics

Total Recoverable Cadmium	Total Recoverable Iron	pH
Total Recoverable Selenium	Total Recoverable Arsenic	Flow
Total Recoverable Antimony	Total Recoverable Zinc	Hardness
Total Purgeable Halocarbons	Total Recoverable Lead	BOD <sub>5</sub>
Total Recoverable Beryllium	Total Recoverable Copper	Chlorides
Total Recoverable Chromium	Total Recoverable Nickel	TSS
Total Recoverable Thallium		

d. Pertinent Factors

None

d. Monitoring Requirements

Instantaneous flow measurements shall be collected once per month.

Total Suspended Solids, BOD<sub>5</sub>, Iron (TR), Chlorides, and pH shall be monitored once per month by grab sample. Antimony (TR), Arsenic (TR), Beryllium (TR), Cadmium (TR), Chromium (TR), Copper (TR), Lead (TR), Nickel (TR), Selenium (TR), Thallium (TR), Zinc (TR), Total Purgeable and Hardness shall be monitored once per quarter by grab sample.

e. Justification of Limits

The Kentucky Administrative Regulations (KARs) cited below has been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes (KRSs).

Flow, Antimony (TR), Arsenic (TR), Beryllium (TR), Cadmium (TR), Chromium (TR), Copper (TR), Lead (TR), Nickel (TR), Thallium (TR), Selenium (TR), Zinc (TR), Total Purgeables, Chlorides, BOD<sub>5</sub> and Hardness

The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(8).

Total Suspended Solids

The limits and requirements for this parameter are consistent with the requirements of 401 KAR 5:080, Section 1(2)(c)2. These limits are representative of the Division of Water's "Best Professional Judgment" (BPJ) determination of the "Best Practicable Control Technology Currently Available" (BPT) and "Best Available Technology Economically Achievable" (BAT) requirements for these types of discharges.

pH and Total Recoverable Iron

The limits and requirements for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4 (1)(b) and 401 KAR 10:031, Section 6.

Total Organic Carbon, Sodium, Sulfate and Specific Conductance,

The removal of these parameters from the permit is consistent with 401 KAR 5:080, Section 1(2)(c)2. A review of the DMR data for the previous permit indicated that reasonable potential did not exist for these parameters to be limited or monitored in the permit. Therefore, it is the "Best Professional Judgment" (BPJ) of the Division of Water that these parameters be removed from the permit.

## 7. REPORTED DISCHARGE AND PROPOSED LIMITS

Description of Discharge - Outfall 003- Storm water runoff

Effluent Characteristics	Reported Discharge		Proposed Limits		Applicable Water Quality Criteria and/or Effluent Guidelines
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Flow (MGD)	0.0122	0.086	Report	Report	401 KAR 5:065, Section 2(8)
Chlorides (mg/l)	31	353	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Sulfate (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Organic Carbon	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Sodium (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Specific Conductance (umho/cm)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Antimony (mg/l)	0.0025	0.009	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Arsenic (mg/l)	0.00382	0.008	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Beryllium (mg/l)	0.002	0.002	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Chromium (mg/l)	0.002063	0.004	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Copper (mg/l)	0.002563	0.007	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Lead (mg/l)	0.00238	0.008	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Nickel (mg/l)	0.0026	0.0058	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Selenium (mg/l)	0.00221	0.004	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Thallium (mg/l)	0.00093	0.005	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Zinc (mg/l)	0.01639	0.072	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Cadmium (mg/l)	0.002	0.002	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Iron (mg/l)	0.923	3.15	NA	Report	401 KAR 5:065, Section 2(8)
Total Suspended Solids (mg/l)	28	228	NA	100	401 KAR 5:080, Section 1(2)(C)2
Biochemical Oxygen Demand (mg/l)	17	47.5	NA	Report	401 KAR 5:065, Section 2(8)
Hardness (AS mg/l of CaCO <sub>3</sub> )	216	290	NA	Report	401 KAR 5:065, Section 2(8)
Total Purgeables (µg/l)	5	5	NA	Report	401 KAR 5:065, Section 2(8)
pH (standard units)	7.82	8.93	6.0 (min)	9.0 (max)	401 KAR 10:031, Section 4(1)(b)

The data contained under the reported discharge columns is from the analysis of the DMR data that has been reported during the term of the current permit.

8. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 003 - Storm water runoffs from covered areas of solid waste landfill

b. Effluent Characteristics

Total Suspended Solids	Total Recoverable Iron	pH
Total Purgeable Halocarbons	Total Recoverable Cadmium	BOD <sub>5</sub>
Hardnes	Flow	

e. Pertinent Factors

None

d. Monitoring Requirements

Instantaneous flow measurements shall be collected once per month.

Total Suspended Solids, BOD<sub>5</sub>, Iron (TR), Cadmium (TR), and pH shall be monitored once per month by grab sample. Total Purgeables and Hardness shall be monitored once per quarter by grab sample.

e. Justification of Limits

The Kentucky Administrative Regulations (KARs) cited below has been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes (KRSs).

Flow, Total Recoverable Cadmium, Total Recoverable Iron, Total Purgeables, BOD<sub>5</sub> and Hardness

The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(8).

Total Suspended Solids

The limits and requirements for this parameter are consistent with the requirements of 401 KAR 5:080, Section 1(2)(c)2. These limits are representative of the Division of Water's "Best Professional Judgment" (BPJ) determination of the "Best Practicable Control Technology Currently Available" (BPT) and "Best Available Technology Economically Achievable" (BAT) requirements for these types of discharges.

pH,

The limits and requirements for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4 (1)(b).

Total Organic Carbon, Sodium, Sulfate, Specific Conductance, Antimony (TR), Arsenic (TR), Beryllium (TR), Chromium (TR), Copper (TR), Lead (TR), Nickel (TR), Thallium (TR), Selenium (TR), Zinc (TR) and Chlorides

The removal of these parameters from the permit is consistent with 401 KAR 5:080, Section 1(2)(c)2. A review of the DMR data for the previous permit indicated that reasonable potential did not exist for these parameters to be limited or monitored in the permit. Therefore, it is the "Best Professional Judgment" (BPJ) of the Division of Water that these parameters be removed from the permit.



## 9. REPORTED DISCHARGE AND PROPOSED LIMITS

Description of Discharge - Outfall 004- Storm water runoff

Effluent Characteristics	Reported Discharge		Proposed Limits		Applicable Water Quality Criteria and/or Effluent Guidelines
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Flow (MGD)	0.0225	0.591	Report	Report	401 KAR 5:065, Section 2(8)
Chlorides (mg/l)	73	914	NA	Report	401 KAR 5:065, Section 2(8)
Sulfate (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Organic Carbon	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Sodium (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Specific Conductance (umho/cm)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Antimony (mg/l)	0.0035	0.009	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Arsenic (mg/l)	0.0054	0.023	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Beryllium (mg/l)	0.0057	0.058	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Chromium (mg/l)	0.0119	0.046	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Copper (mg/l)	0.00945	0.0306	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Lead (mg/l)	0.00588	0.015	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Nickel (mg/l)	0.0266	0.204	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Selenium (mg/l)	0.0022	0.004	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Thallium (mg/l)	0.00093	0.005	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Zinc (mg/l)	0.0775	0.275	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Cadmium (mg/l)	0.002	0.002	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Iron (mg/l)	11.41	65.5	NA	4.0	401 KAR 10:031, Section 6
Total Suspended Solids (mg/l)	369	1584	NA	100	401 KAR 5:080, Section 1(2)(C)2
Biochemical Oxygen Demand (mg/l)	56.92	171.33	NA	Report	401 KAR 5:065, Section 2(8)
Hardness (AS mg/l of CaCO <sub>3</sub> )	360	650	NA	Report	401 KAR 5:065, Section 2(8)
Total Purgeables (µg/l)	5	5	NA	Report	401 KAR 5:065, Section 2(8)
pH (standard units)	7.94	9.35	6.0 (min)	9.0 (max)	401 KAR 10:031, Section 4(1)(b)

The data contained under the reported discharge columns is from the analysis of the DMR data that has been reported during the term of the current permit.

10. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 004 - Storm water runoffs from covered areas of solid waste landfill

b. Effluent Characteristics

Total Suspended Solids	Total Recoverable Iron	pH
Total Purgeable Halocarbons	Total Recoverable Cadmium	BOD <sub>5</sub>
Total Recoverable Zinc Chlorides	Hardnes	Flow

f. Pertinent Factors

None

d. Monitoring Requirements

Instantaneous flow measurements shall be collected once per month.

Total Suspended Solids, BOD<sub>5</sub>, Iron (TR), Cadmium (TR), Zinc (TR), Chlorides and pH shall be monitored once per month by grab sample. Total Purgeables and Hardness shall be monitored once per quarter by grab sample.

e. Justification of Limits

The Kentucky Administrative Regulations (KARs) cited below has been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes (KRSs).

Flow, Total Recoverable Cadmium, Total Recoverable Zinc, Total Purgeables, BOD<sub>5</sub> and Hardness

The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(8).

Total Suspended Solids

The limits and requirements for this parameter are consistent with the requirements of 401 KAR 5:080, Section 1(2)(c)2. These limits are representative of the Division of Water's "Best Professional Judgment" (BPJ) determination of the "Best Practicable Control Technology Currently Available" (BPT) and "Best Available Technology Economically Achievable" (BAT) requirements for these types of discharges.

pH and Total Recoverable Iron

The limits and requirements for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4 (1)(b) and 401 KAR 10:031, Section 6.

Total Organic Carbon, Sodium, Sulfate, Specific Conductance, Antimony (TR), Arsenic (TR), Beryllium (TR), Chromium (TR), Copper (TR), Lead (TR), Nickel (TR), Thallium (TR), Selenium (TR) and Chlorides

The removal of these parameters from the permit is consistent with 401 KAR 5:080, Section 1(2)(c)2. A review of the DMR data for the previous permit indicated that reasonable potential did not exist for these parameters to be limited or monitored in the permit. Therefore, it is the "Best Professional Judgment" (BPJ) of the Division of Water that these parameters be removed from the permit.

# 11. REPORTED DISCHARGE AND PROPOSED LIMITS

Description of Discharge - Outfall 005- Storm water runoff

Effluent Characteristics	Reported Discharge		Proposed Limits		Applicable Water Quality Criteria and/or Effluent Guidelines
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Flow (MGD)	NA	NA	Report	Report	401 KAR 5:065, Section 2(8)
Chlorides (mg/l)	NA	NA	Report	Report	401 KAR 5:065, Section 2(8)
Sulfate (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Organic Carbon	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Sodium (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Specific Conductance (umho/cm)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Antimony (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Arsenic (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Beryllium (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Cadmium (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Chromium (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Copper (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Lead (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Nickel (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Selenium (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Thallium (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Zinc (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Hardness (AS mg/l of CaCO <sub>3</sub> )	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Purgeables (µg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Biochemical Oxygen Demand (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Iron (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Suspended Solids (mg/l)	NA	NA	NA	100	401 KAR 5:080, Section 1(2)(C)2
pH (standard units)	NA	NA	6.0 (min)	9.0 (max)	401 KAR 10:031, Section 4(1)(b)

NA Not Available

12. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 005 - Storm water runoffs from covered areas of solid waste landfill

b. Effluent Characteristics

Total Recoverable Cadmium	Total Recoverable Iron	pH
Total Recoverable Selenium	Total Recoverable Arsenic	Flow
Total Recoverable Antimony	Total Recoverable Zinc	Hardness
Total Purgeable Halocarbons	Total Recoverable Lead	BOD <sub>5</sub>
Total Recoverable Beryllium	Total Recoverable Copper	Chlorides
Total Recoverable Chromium	Total Recoverable Nickel	TSS
Total Recoverable Thallium		

g. Pertinent Factors

None

d. Monitoring Requirements

Instantaneous flow measurements shall be collected once per month.

Total Suspended Solids, BOD<sub>5</sub>, Iron (TR), Chlorides, and pH shall be monitored once per month by grab sample. Antimony (TR), Arsenic (TR), Beryllium (TR), Cadmium (TR), Chromium (TR), Copper (TR), Lead (TR), Nickel (TR), Selenium (TR), Thallium (TR), Zinc (TR), Total Purgeable and Hardness shall be monitored once per quarter by grab sample.

e. Justification of Limits

The Kentucky Administrative Regulations (KARs) cited below has been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes (KRSs).

Flow, Antimony (TR), Arsenic (TR), Beryllium (TR), Cadmium (TR), Chromium (TR), Copper (TR), Iron (TR), Lead (TR), Nickel (TR), Thallium (TR), Selenium (TR), Zinc (TR), Total Purgeables, Chlorides, BOD<sub>5</sub> and Hardness

The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(8).

Total Suspended Solids

The limits and requirements for this parameter are consistent with the requirements of 401 KAR 5:080, Section 1(2)(c)2. These limits are representative of the Division of Water's "Best Professional Judgment" (BPJ) determination of the "Best Practicable Control Technology Currently Available" (BPT) and "Best Available Technology Economically Achievable" (BAT) requirements for these types of discharges.

pH

The limits and requirements for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4 (1)(b).

Total Organic Carbon, Sodium, Sulfate and Specific Conductance,

The removal of these parameters from the permit is consistent with 401 KAR 5:080, Section 1(2)(c)2. A review of the DMR data for the previous permit indicated that reasonable potential did not exist for these parameters to be limited or monitored in the permit. Therefore, it is the "Best Professional Judgment" (BPJ) of the Division of Water that these parameters be removed from the permit.

### 13. REPORTED DISCHARGE AND PROPOSED LIMITS

Description of Discharge - Outfalls 006, 007 and 008 - Storm water runoff

Effluent Characteristics	Reported Discharge		Proposed Limits		Applicable Water Quality Criteria and/or Effluent Guidelines
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Flow (MGD)	NA	NA	Report	Report	401 KAR 5:065, Section 2(8)
Chlorides (mg/l)	NA	NA	Report	Report	401 KAR 5:065, Section 2(8)
Sulfate (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Organic Carbon	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Sodium (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Specific Conductance (umho/cm)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Antimony (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Arsenic (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Beryllium (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Cadmium (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Chromium (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Copper (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Lead (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Nickel (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Selenium (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Thallium (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Zinc (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Hardness (AS mg/l of CaCO <sub>3</sub> )	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Biochemical Oxygen Demand (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Iron (mg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Suspended Solids (mg/l)	NA	NA	NA	100	401 KAR 5:080, Section 1(2)(C)2
pH (standard units)	NA	NA	6.0 (min)	9.0 (max)	401 KAR 10:031, Section 4(1)(b)
NA	Not Available				

14. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfalls 006, 007 and 008 - Storm water runoffs from covered areas of solid waste landfill

b. Effluent Characteristics

Total Recoverable Cadmium	Total Recoverable Iron	pH
Total Recoverable Selenium	Total Recoverable Arsenic	Flow
Total Recoverable Antimony	Total Recoverable Zinc	Hardness
Total Recoverable Thallium	Total Recoverable Lead	BOD <sub>5</sub>
Total Recoverable Beryllium	Total Recoverable Copper	Chlorides
Total Recoverable Chromium	Total Recoverable Nickel	TSS

h. Pertinent Factors

None

d. Monitoring Requirements

Instantaneous flow measurements shall be collected once per month.

Total Suspended Solids, BOD<sub>5</sub>, Iron (TR), Chlorides, and pH shall be monitored once per month by grab sample. Antimony (TR), Arsenic (TR), Beryllium (TR), Cadmium (TR), Chromium (TR), Copper (TR), Lead (TR), Nickel (TR), Selenium (TR), Thallium (TR), Zinc (TR) and Hardness shall be monitored once per quarter by grab sample.

e. Justification of Limits

The Kentucky Administrative Regulations (KARs) cited below has been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes (KRSs).

Flow, Antimony (TR), Arsenic (TR), Beryllium (TR), Cadmium (TR), Chromium (TR), Copper (TR), Iron (TR), Lead (TR), Nickel (TR), Thallium (TR), Selenium (TR), Zinc (TR), Chlorides, BOD<sub>5</sub> and Hardness

The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(8).

Total Suspended Solids

The limits and requirements for this parameter are consistent with the requirements of 401 KAR 5:080, Section 1(2)(c)2. These limits are representative of the Division of Water's "Best Professional Judgment" (BPJ) determination of the "Best Practicable Control Technology Currently Available" (BPT) and "Best Available Technology Economically Achievable" (BAT) requirements for these types of discharges.

pH

The limits and requirements for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4 (1)(b).

Total Organic Carbon, Sodium, Sulfate and Specific Conductance,

The removal of these parameters from the permit is consistent with 401 KAR 5:080, Section 1(2)(c)2. A review of the DMR data for the previous permit indicated that reasonable potential did not exist for these parameters to be limited or monitored in the permit. Therefore, it is the "Best Professional Judgment" (BPJ) of the Division of Water that these parameters be removed from the permit.

## 15. REPORTED DISCHARGE AND PROPOSED LIMITS

Description of Discharge - Outfall 009- Site produced leachate

Effluent Characteristics	Reported Discharge		Proposed Limits		Applicable Water Quality Criteria and/or Effluent Guidelines
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Flow (MGD)	NA	NA	Report	Report	401 KAR 5:065, Section 2(8)
Total Suspended Solids (mg/l)	NA	NA	27	88	401 KAR 5:065, Section 5(3)
BOD <sub>5</sub> (mg/l)	NA	NA	37	140	401 KAR 5:065, Section 5(3)
Ammonia (as mg/l N)	NA	NA	4.9	10	401 KAR 5:065, Section 5(3)
Alpha-Terpineol (mg/l)	NA	NA	0.016	0.033	401 KAR 5:065, Section 5(3)
Benzoic Acid (mg/l)	NA	NA	0.071	0.12	401 KAR 5:065, Section 5(3)
p-Cresol (mg/l)	NA	NA	0.014	0.025	401 KAR 5:065, Section 5(3)
Phenol (mg/l)	NA	NA	0.015	0.026	401 KAR 5:065, Section 5(3)
Total Zinc (mg/l)	NA	NA	0.11	0.20	401 KAR 5:065, Section 5(3)
Chronic Toxicity	NA	NA	N/A	1.0 TU <sub>c</sub>	401 KAR 10:031, Section 6
Dissolved Oxygen (minimum)	NA	NA	7 mg/l	N/A	401 KAR 5:065, Section 2(12)
Hardness (as mg/l of CaCO <sub>3</sub> )	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Purgeables (µg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Lead (µg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Zinc (µg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Arsenic (µg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Iron (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Cyanide, Free (µg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Chlorides (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Sulfate (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Organic Carbon	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Sodium (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Specific Conductance (umho/cm)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
CBOD <sub>5</sub> (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Antimony (µg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Beryllium (µg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(C)2

NA Not Available

# 15. REPORTED DISCHARGE AND PROPOSED LIMITS (CONTINUED)

Description of Discharge - Outfall 009- Site produced leachate

Effluent Characteristics	Reported Discharge		Proposed Limits		Applicable Water Quality Criteria and/or Effluent Guidelines
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Total Recoverable Cadmium (µg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Chromium (µg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Copper (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Nickel (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Thallium (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Selenium (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Silver (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
pH (standard units)	NA	NA	6.0 (min)	9.0 (max)	401 KAR 10:031, Section 4

NA Not Available



16. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 009 - Site produced leachate

b. Effluent Characteristics

Dissolved Oxygen	p-Cresol	pH
Chronic Toxicity	BOD <sub>5</sub>	Flow
Total Purgeables	Total Suspended Solids	Hardness
Alpha-Terpineol	Ammonia	Total Zinc
Benzoic Acid	Phenol	

i. Pertinent Factors

None

d. Monitoring Requirements

Instantaneous flow measurements shall be collected once per Discharge.

Total Suspended Solids, BOD<sub>5</sub>, Ammonia, Alpha-Terpineol, Benzoic Acid, Phenol, P-Cresol, Zinc (Total), Dissolved Oxygen, Chronic Toxicity and pH shall be monitored once per Discharge by grab sample. Total Purgeables and Hardness shall be monitored once per Month by grab sample

e. Justification of Limits

The Kentucky Administrative Regulations (KARs) cited below has been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes (KRSs).

Flow, Total Purgeables and Hardness

The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(8).

Total Suspended Solids, BOD<sub>5</sub>, Ammonia, Alpha-Terpineol, Benzoic Acid, Phenol, P-Cresol, Zinc, and pH

Limitations for these parameters are consistent with the requirements of 401 KAR 5:065, Section 5(3). These limits are representative of the "Best Practicable Technology Currently Available" (BPT) for an existing landfill point source category, pursuant to 40 CFR Part 445.21.

Chronic Toxicity and Dissolved Oxygen

The limits and requirements for these parameters are consistent with the requirements of 401 KAR 10:031, Section 6, Section 4 and 401 KAR 5:065, Section 2(12).

Total Organic Carbon, Sodium, Sulfate, Specific Conductance, Iron (TR), Arsenic (TR), Beryllium (TR), Antimony (TR), CBOD<sub>5</sub>, Chromium (TR), Nickel (TR), Zinc (TR), Lead (TR), Thallium (TR), Selenium (TR), Cadmium (TR), Copper (TR), Silver (TR), Cyanide Free and Chlorides

The removal of these parameters from the permit is consistent with 401 KAR 5:080, Section 1(2)(c)2. A review of the DMR data for the previous permit indicated that reasonable potential did not exist for these parameters to be limited or monitored in the permit. Therefore, it is the "Best Professional Judgment" (BPJ) of the Division of Water that these parameters be removed from the permit.

17. **ANTIDegradation**

The conditions of 401 KAR 10:029, Section 1 has been satisfied by this permit action. Since this permit action involves reissuance of an existing permit, and does not propose an expanded discharge, a review under 401 KAR 10:030 Section 1 is not applicable.

18. **PROPOSED COMPLIANCE SCHEDULE FOR ATTAINING EFFLUENT LIMITATIONS**

Permittee shall comply with the effluent limitations by the effective date of the permit.

19. **PROPOSED SPECIAL CONDITIONS WHICH WILL HAVE A SIGNIFICANT IMPACT ON THE DISCHARGE**

Best Management Practices (BMP) Plan

Pursuant to 401 KAR 5:065, Section 2(10), a BMP requirement shall be included: to control or abate the discharge of pollutants from ancillary areas containing toxic or hazardous substances or those substances which could result in an environmental emergency; where numeric effluent limitations are infeasible; or to carry out the purposes and intent of KRS 224. The facility has several areas where support activities occur which have a potential of the discharge of such substances through storm water runoff or spillage. Some of these areas will drain to present wastewater treatment plants, others will not.

**Outfall Signage**

As a member of ORSANCO (Ohio River Valley Sanitation Commission) the Commonwealth of Kentucky through the Division of Water implements a requirement that the permittee post a permanent marker at each discharge point to the Ohio River. It is the Best Professional Judgment of the Division of Water, 401 KAR 5:080, Section 1(2)(c)2, that all permittees post a marker at all discharge locations and/or monitoring points. The ORSANCO requirements for the marker specify it to be at least 2 feet by 2 feet in size and a minimum of 3 feet above ground level with the Permittee Name and KPDES permit and outfall numbers in 2 inch letters. For internal monitoring points the marker shall be of sufficient size to include the outfall number in 2 inch letters and is to be posted as near as possible to the actual sampling location.

20. **PERMIT DURATION**

Five (5) years. This facility is in the Salt/Licking Basin Management Unit as per the Kentucky Watershed Management Framework.

21. **PERMIT INFORMATION**

The application, draft permit fact sheet, public notice, comments received and additional information is available by writing the Division of Water at 200 Fair Oaks Lane, Frankfort, Kentucky 40601.

22. **REFERENCES AND CITED DOCUMENTS**

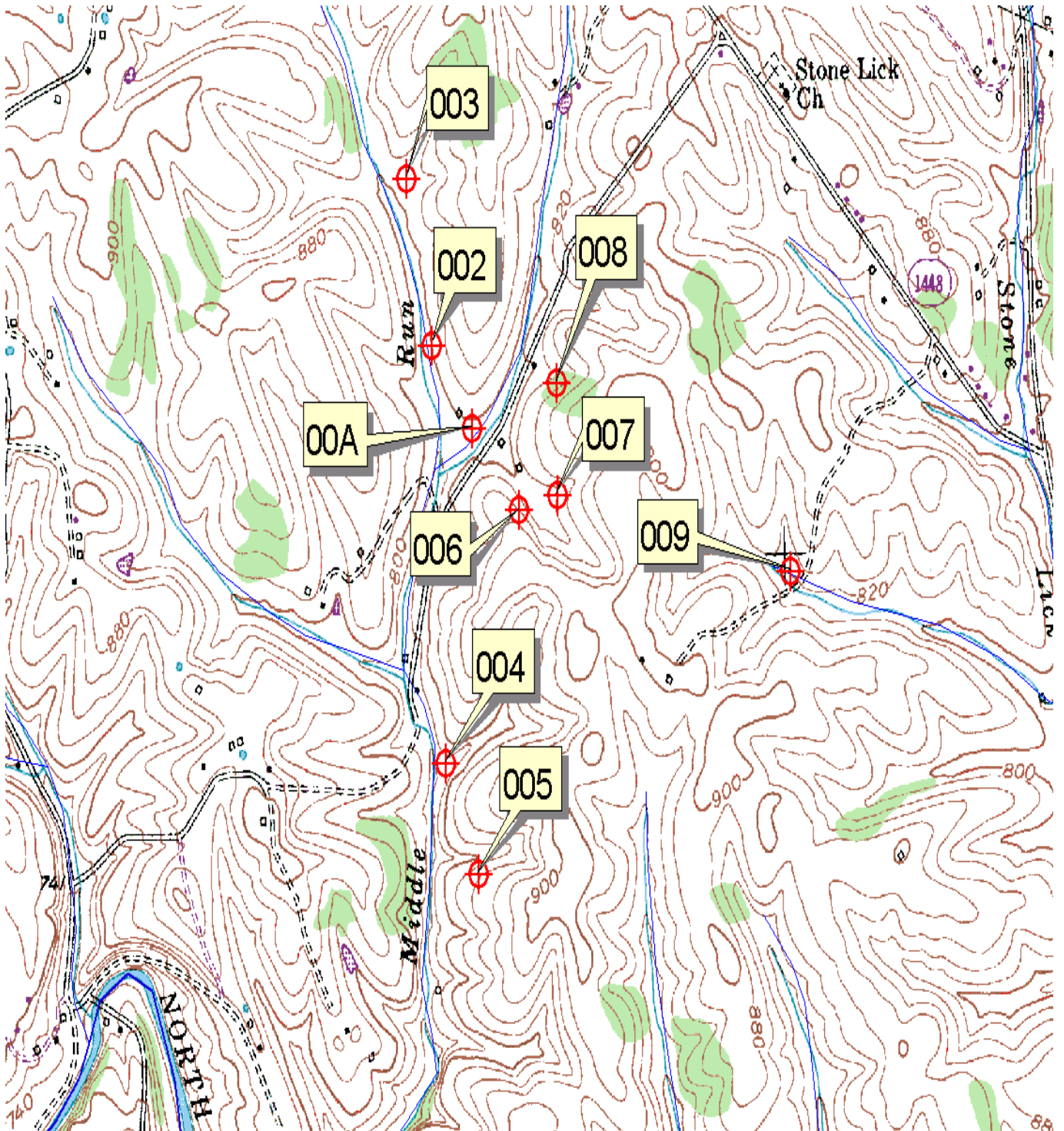
All material and documents referenced or cited in this fact sheet are parts of the permit information as described above and are readily available at the Division of Water Central Office. Information regarding these materials may be obtained from the person listed below.

15. **CONTACT**

For further information contact the individual identified on the Public Notice or the Permit Writer - Mahmoud Sartipi at (502) 564-3410, extension 4954 or e-mail Mahmoud.Sartipi@ky.gov.

16. **PUBLIC NOTICE INFORMATION**

Please refer to the attached Public Notice for details regarding the procedures for a final permit decision, deadline for comments, and other information required by 401 KAR 5:075, Section 4(2)(e).



**STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 00A**

<b>Permit Writer</b>	Mahmoud Sartipi	
<b>Date Entered</b>	2/26/2009	
<b>Facility Name</b>	Maysville Mason	
	County Landfill	
<b>KPDES Number</b>	KY0091782	
<b>Outfall Number</b>	00A	
<b>Case</b>	Reissuance	
<b>Status:</b>		
Is this an existing facility – Enter “E”	E	
Is this an existing facility with an increase in pollutant load – Enter “I”		
Is this a new facility – Enter “N”		
Is this a regional facility with an approved up-to-date 201 plan – Enter “R”		
Has the permittee made a successful alternatives analysis/socioeconomic demonstration – Enter “A”		
<b>Receiving Water Name</b>	UT to Middle Run	
<b>Discharge Mile Point</b>	0.2	
<b>Public Water Supply Name</b>	Falmouth Water	
	Department	
<b>Intake Water Name</b>	Falmouth Water	
	Department	
<b>Intake Mile Point</b>	52.9	
<b>Total Effluent Flow (Q<sub>T</sub>)</b>	0.004	MGD
<b>Receiving Water 7Q10 (Q<sub>RW7Q10</sub>)</b>	0	cfs
<b>Receiving Water Harmonic Mean (Q<sub>RWHM</sub>)</b>	0	cfs
<b>Receiving Water pH</b>	7.5	SU
<b>Receiving Water Temperature</b>	20.00	°C
<b>Intake Water 7Q10 (Q<sub>IW7Q10</sub>)</b>	70	cfs
<b>Intake Water Harmonic Mean (Q<sub>IWHM</sub>)</b>	584	cfs
<b>Effluent Hardness</b>	297	(as mg/l CaCO <sub>3</sub> )
<b>Receiving Water Hardness</b>	100	(as mg/l CaCO <sub>3</sub> )
<b>Zone of Initial Dilution (ZID)</b>	1	
<b>Mixing Zone (MZ)</b>	0	
<b>Acute to Chronic Ratio (ACR)</b>	0.1	
<b>Impaired</b>	No	
<b>Permittee agrees to accept no mixing zone for bioaccumulative or persistent pollutants prior to 09/08/2014</b>	Yes	

# STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 00A

## Calculation Methodology

### Definitions

Acute to Chronic Ratio	ACR	Total Effluent Flow	$Q_T$
Aquatic Life Acute Criteria	$C_A$	Receiving Water 7Q10	$Q_{RW7Q10}$
Aquatic Life Chronic Criteria	$C_C$	Receiving Water Harmonic Mean	$Q_{RWHM}$
Human Health Criteria - Fish Only	$C_{HHFO}$	Intake Water 7Q10	$Q_{IW7Q10}$
Human Health Criteria - Fish & Water	$C_{HHFW}$	Intake Water Harmonic Mean	$Q_{IWHM}$
End of Pipe Effluent Limit	$C_T$	Zone of Initial Dilution	ZID
Instream Background Concentration	$C_U$	Mixing Zone	MZ
Toxicity Units - Acute	$TU_a$	Toxicity Units - Chronic	$TU_c$
Effluent Hardness	$H_T$	Receiving Water Hardness	$H_{RW}$

### Aquatic Life - Chemical Specific

#### Acute

NO ZID given  $C_T = C_A$   
 ZID given  $C_T = (C_A - C_U) \times (ZID)$

#### Chronic Mixing Zone / Complete Mix

$$C_T = \{C_C[Q_T + (MZ)(Q_{RW7Q10})] - [C_U(MZ)(Q_{RW7Q10})]\} / Q_T$$

### Human Health - Chemical Specific

#### Fish Only: Mixing Zone / Complete Mix

Carcinogen / Non-Carcinogen  $C_T = \{C_{HHFO}[Q_T + (MZ)(Q_{RWHM})] - C_U(MZ)(Q_{RWHM})\} / Q_T$

#### Fish & Water Only: Mixing Zone / Applicable at point of withdrawal

Carcinogen  $C_T = \{C_{HHFW}[Q_T + (Q_{IWHM})] - C_U(Q_{IWHM})\} / Q_T$   
 Non-Carcinogen  $C_T = \{C_{HHFW}[Q_T + (Q_{IW7Q10})] - C_U(Q_{IW7Q10})\} / Q_T$

### Aquatic Life - Whole Effluent Toxicity

#### Acute (Units $TU_a$ )

NO ZID given  $C_T = C_A$   
 ZID given  $C_T = (C_A - C_U) \times (ZID)$

#### Chronic Mixing Zone / Complete Mix (Units $TU_c$ )

$C_T = \{C_C[Q_T + (MZ)(Q_{RW7Q10})] - [C_U(MZ)(Q_{RW7Q10})]\} / Q_T$   
 Conversion of  $TU_c$  to  $TU_a$ :  $TU_c \times ACR = TU_a$

## STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 00A

### Metal Aquatic Criteria

#### Pollutant

Total Recoverable Cadmium  
 Chromium III  
 Total Recoverable Copper  
 Total Recoverable Lead  
 Total Recoverable Nickel  
 Total Recoverable Silver  
 Total Recoverable Zinc

#### Acute Criteria

$e^{(1.0166 (\ln \text{Hardness}) - 3.924)}$   
 $e^{(0.8190 (\ln \text{Hardness}) + 3.7256)}$   
 $e^{(0.9422 (\ln \text{Hardness}) - 1.700)}$   
 $e^{(1.273 (\ln \text{Hardness}) - 1.460)}$   
 $e^{(0.8460 (\ln \text{Hardness}) + 2.255)}$   
 $e^{(1.72 (\ln \text{Hardness}) - 6.59)}$   
 $e^{(0.8473 (\ln \text{Hardness}) + 0.884)}$

#### Chronic Criteria

$e^{(0.7409 (\ln \text{Hardness}) - 4.719)}$   
 $e^{(0.8190 (\ln \text{Hardness}) + 0.6848)}$   
 $e^{(0.8545 (\ln \text{Hardness}) - 1.702)}$   
 $e^{(1.273 (\ln \text{Hardness}) - 4.705)}$   
 $e^{(0.8460 (\ln \text{Hardness}) + 0.0584)}$   
 $e^{(0.8473 (\ln \text{Hardness}) + 0.884)}$

### Hardness (as mg/l CaCO<sub>3</sub>)

Zone Initial Dilution (ZID)  
 Mixing Zone

$$H_{RW} + [H_T + H_{RW}]/ZID$$

$$[(Q_{RW7Q10})(MZ)(H_{RW}) + (Q_T)(H_T)]/[(Q_{RW7Q10})(MZ) + (Q_T)]$$

### Total Ammonia Criteria

Chronic - applies state wide - unionized criteria of 0.05 mg/l

Acute - applies to the Ohio River (ORSANCO Criteria)

$$\frac{[0.05 * (1 + 10^{(pKa - pH)})]^{1.2}}{[0.411 / (1 + 10^{(7.204 - pH)})] + [58.4 / (1 + 10^{(pH - 7.204)})]}$$

$$pKa = (0.0902 + (2730 / (273.1 + T)))$$

T = Temperature °C

### Bioaccumulative or Persistent

For new facilities after September 8, 2004 mixing zones shall not be granted for bioaccumulative or persistent pollutants of concern.

Mixing zones for bioaccumulative or persistent pollutants of concerned assigned prior to September 8, 2004 shall expire no later than September 8, 2014, unless the permittee agrees to expiration of the mixing zone prior to that date.

Therefore, the application of the more stringent criteria of Human Health Fish & Water Consumption, Human Health Fish Only Consumption, and Aquatic Life Chronic shall apply as end-of-pipe effluent limitations.

### Antidegradation

If a new facility or an existing facility that will have a pollutant load increase, the effluent limits are halved unless the receiving stream is impaired or the permittee has demonstrated a negative socioeconomic or cost benefit analysis.

## **STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 00A**

### **Reasonable Potential Analysis**

In establishing water quality based effluent conditions the Division of Water must determine if the pollutant concentrations in the discharge will cause, have the reasonable potential to cause, or contribute to an excursion of any water standard. The process by which the Division of Water makes this determination is known as a Reasonable Potential Analysis.

A Reasonable Potential Analysis is performed by first calculating the expected effluent limitations for those pollutants with water quality criteria. The calculated limits are then compared to the concentrations reported on the KPDES permit application and/or a summarization of the values reported on the Discharge Monitoring Report (DMRs) submitted during the term of the permit. This comparison is made by dividing the reported value by the calculated effluent limitation and converting to a percentage. The following criteria are used in determining how the pollutant will be addressed in the permit.

### **New Permits or New Pollutants on Permit Renewals**

If the reported concentration is less than 70% of the calculated effluent limit then no monitoring or limitations will be required.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is less than 12 then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is equal or greater than 12 then an effluent limitation will be required.

### **Permit Renewals - Existing Pollutants**

If the reported concentration is less than 70% of the calculated effluent limit then and the source of the reported concentration was the DMRs for that facility and there were more than 12 DMRs utilized to determine the reported concentrations then the pollutant will be removed from the permit.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% then an effluent limitation will be required.

In all cases, the Division of Water still may exercise its Best Professional Judgment in the implementation of the results.



# STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 00A

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
Chloride	16887006	26.000000	39.000000	600.000000	1,200.000000	4.33%	3.25%	DMR	4	Monitoring	Monitoring	Chronic	Acute
Total Residual Chlorine		0.000000	0.000000	0.011000	0.019000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Color		0.000000	0.000000	847.950000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Fluoride		0.000000	0.000000	22,612.000000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Nitrate-Nitrite (as N)	14797558	0.000000	0.000000	113,060.000000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Alpha		0.000000	0.000000	NA	15.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Beta		0.000000	0.000000	NA	50.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Radium		0.000000	0.000000	NA	5.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Sulfate (as SO4)		0.000000	0.000000	2,826,500.000000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Surfactants		0.000000	0.000000	5,653.000000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Barium	7440393	0.000000	0.000000	11,306.000000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Iron	7439896	8.360000	29.600000	1.000000	4.000000	836.00%	740.00%	DMR	4	Limit	Limit	Chronic	Acute
Total Recoverable Antimony	7440360	0.004000	0.009000	0.640000	NA	0.63%	0.00%	DMR	4	Monitoring	Monitoring	HH Fish	NA
Total Recoverable Arsenic	7440382	0.003000	0.005000	0.150000	0.340000	2.00%	1.47%	DMR	4	Monitoring	Monitoring	Chronic	Acute
Total Recoverable Beryllium	7440417	0.002000	0.002000	45.224000	NA	0.00%	0.00%	DMR	4	Monitoring	Monitoring	HH DWS	NA
Total Recoverable Cadmium	7440439	0.002000	0.002000	0.000606	0.006451	329.91%	31.00%	DMR	4	Limit	Monitoring	Chronic	Acute
Total Recoverable Chromium	7440439	0.004750	0.013000	1,130.600000	NA	0.00%	0.00%	DMR	4	Monitoring	Monitoring	HH DWS	NA
Total Recoverable Copper	7440508	0.005800	0.017000	0.023648	0.039042	24.53%	43.54%	DMR	4	Monitoring	Monitoring	Chronic	Acute
Total Recoverable Lead	7439921	0.006000	0.010000	0.012719	0.326399	47.17%	3.06%	DMR	4	Monitoring	Monitoring	Chronic	Acute
Total Recoverable Mercury	7439976	0.000000	0.000000	0.000051	0.001700	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Total Recoverable Nickel	7440020	0.007000	0.021000	0.131013	1.178382	5.34%	1.78%	DMR	4	Monitoring	Monitoring	Chronic	Acute
Total Recoverable Selenium	7782492	0.002000	0.002000	0.005000	0.020000	40.00%	10.00%	DMR	4	Monitoring	Monitoring	Chronic	Acute
Total Recoverable Silver	7440224	0.000000	0.000000	NA	0.024612	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Recoverable Thallium	7440280	0.002000	0.005000	0.006300	NA	31.75%	0.00%	DMR	4	Monitoring	Monitoring	HH Fish	NA
Total Recoverable Zinc	7440666	0.059000	0.090000	0.301358	0.301358	19.58%	29.86%	DMR	4	Monitoring	Monitoring	Chronic	Acute
Free Cyanide	57125	0.000000	0.000000	0.005200	0.022000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
2,3,7,8 Tetrachlorodibenzo P Dioxin	1746016	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acrolein	107028	0.000000	0.000000	0.290000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acrylonitrile	107131	0.000000	0.000000	0.000250	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzene	71432	0.000000	0.000000	0.051000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bromoform	75252	0.000000	0.000000	0.140000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Carbon Tetrachloride	56235	0.000000	0.000000	0.001600	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chlorobenzene	108907	0.000000	0.000000	21.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chlorodibromomethane	124481	0.000000	0.000000	0.013000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chloroform	67663	0.000000	0.000000	0.470000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dichlorobromomethane	75274	0.000000	0.000000	0.017000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichloroethane	107062	0.000000	0.000000	0.037000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1-Dichloroethylene	75354	0.000000	0.000000	0.003200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichloropropane	78875	0.000000	0.000000	0.015000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,3-Dichloropropene	542756	0.000000	0.000000	1.700000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Ethylbenzene	100414	0.000000	0.000000	29.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Methyl Bromide	74839	0.000000	0.000000	1.500000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Methylene Chloride	75092	0.000000	0.000000	0.590000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1,2,2-Tetrachloroethane	79345	0.000000	0.000000	0.004000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Tetrachloroethylene	127184	0.000000	0.000000	0.003300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

**STEADY STATE TOXICS WASTeload ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 00A**

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
Toluene	108883	0.000000	0.000000	200.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Trans-Dichloroethylene	156605	0.000000	0.000000	140.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1,1-Trichloroethane	71556	0.000000	0.000000	2,261.200000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
1,1,2-Trichloroethane	79005	0.000000	0.000000	0.016000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Trichloroethylene	79016	0.000000	0.000000	0.030000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Vinyl Chloride	75014	0.000000	0.000000	0.530000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-Chlorophenol	95578	0.000000	0.000000	0.150000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dichlorophenol	120832	0.000000	0.000000	0.290000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dimethylphenol	105679	0.000000	0.000000	0.850000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dinitrophenol	51285	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Pentachlorophenol	87865	0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Phenol	108952	0.000000	0.000000	1,700.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4,6-Trichlorophenol	88062	0.000000	0.000000	0.002400	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acenaphthene	83329	0.000000	0.000000	0.990000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Anthracene	120127	0.000000	0.000000	40.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzidine	92875	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(a)anthracene	56553	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(a)pyrene	50328	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(k)fluoranthene	205992	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-chloroisopropyl)ether	108601	0.000000	0.000000	65.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-ethylhexyl)phthalate	117817	0.000000	0.000000	0.002200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Butylbenzyl phthalate	85687	0.000000	0.000000	1.900000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-Chloronaphthalene	91587	0.000000	0.000000	1.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chrysene	218019	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dibenzo(a,h)anthracene	53703	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichlorobenzene	95501	0.000000	0.000000	17.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,3-Dichlorobenzene	541731	0.000000	0.000000	0.960000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,4-Dichlorobenzene	106467	0.000000	0.000000	2.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
3,3-Dichlorobenzidine	91941	0.000000	0.000000	0.000028	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Diethyl phthalate	84662	0.000000	0.000000	44.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dimethyl phthalate	131113	0.000000	0.000000	1,100.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Di-n-butyl phthalate	84742	0.000000	0.000000	4.500000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dinitrotoluene	121142	0.000000	0.000000	0.003400	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Diphenylhydrazine	122667	0.000000	0.000000	0.000200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Fluoranthene	206440	0.000000	0.000000	0.140000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Fluorene	86737	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorobenzene	118741	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorobutadiene	87683	0.000000	0.000000	0.018000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorocyclopentadiene	77474	0.000000	0.000000	17.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachloroethane	67721	0.000000	0.000000	0.003300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Ideno(1,2,3-cd)pyrene	193395	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Isophorone	78591	0.000000	0.000000	0.960000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Nitrobenzene	98953	0.000000	0.000000	0.690000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodimethylamine	62759	0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodi-n-Propylamine	621647	0.000000	0.000000	0.000510	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

# STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 00A

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
N-Nitrosodiphenylamine	86306	0.000000	0.000000	0.006000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Pyrene	129000	0.000000	0.000000	4.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2,4-Trichlorobenzene	120821	0.000000	0.000000	0.940000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Aldrin	309002	0.000000	0.000000	0.000000	0.003000	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
alpha-BHC	319846	0.000000	0.000000	0.000005	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Beta-BHC	319857	0.000000	0.000000	0.000017	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
gamma-BHC (Lindane)	58899	0.000000	0.000000	0.000063	0.000950	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Chlordane	57749	0.000000	0.000000	0.000001	0.002400	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
4,4'-DDT	50293	0.000000	0.000000	0.000000	0.001100	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
4,4'-DDE	72559	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
4,4'-DDD	72548	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dieldrin	60571	0.000000	0.000000	0.000000	0.000240	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Alpha-Endosulfan	959988	0.000000	0.000000	0.000056	0.000220	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Beta-Endosulfan	33213659	0.000000	0.000000	0.000056	0.000220	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Endosulfan sulfate	1031078	0.000000	0.000000	0.089000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Endrin	72208	0.000000	0.000000	0.000036	0.000086	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Endrin aldehyde	7421934	0.000000	0.000000	0.000300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Heptachlor	76448	0.000000	0.000000	0.000000	0.000520	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Heptachlor epoxide	1024573	0.000000	0.000000	0.000000	0.000520	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Polychlorinated Biphenyls (PCBs)		0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Toxaphene	8001352	0.000000	0.000000	0.000000	0.000730	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
1,2,4,5-Tetrachlorobenzene	95943	0.000000	0.000000	0.001100	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-methyl-4,6-dinitrophenol	534521	0.000000	0.000000	0.280000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-D	94757	0.000000	0.000000	6,602.190000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,5-TP (Silvex)	93721	0.000000	0.000000	113.060000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,5-trichlorophenol	95954	0.000000	0.000000	3.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Asbestos	1332214	0.000000	0.000000	660,219,000.000000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Benzo(b)fluoranthene	205992	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-chloroethyl)ether	111444	0.000000	0.000000	0.000530	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(chloromethyl)ether	542881	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chloropyrifos	2921882	0.000000	0.000000	0.000041	0.000083	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Chromium (III)	16065831	0.000000	0.000000	0.210180	4.397391	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Chromium (VI)	18540299	0.000000	0.000000	0.011000	0.016000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Demeton	8065483	0.000000	0.000000	0.000100	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Dinitrophenols	25550587	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Guthion	86500	0.000000	0.000000	0.000010	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Hexachlorocyclo-hexane-Technical	319868	0.000000	0.000000	0.000041	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hydrogen Sulfide, Undissociated	7783064	0.000000	0.000000	0.002000	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Malathion	121755	0.000000	0.000000	0.000100	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Methoxychlor	72435	0.000000	0.000000	0.000030	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Mirex	2385855	0.000000	0.000000	0.000001	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Nitrosamines, Other		0.000000	0.000000	0.001240	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodibutylamine	924163	0.000000	0.000000	0.000220	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodiethylamine	55185	0.000000	0.000000	0.001240	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosopyrrolidine	930552	0.000000	0.000000	0.034000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

**STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 00A**

<u>Parameter</u>	<u>CAS Number</u>	<u>Reported Discharge (mg/l)</u>		<u>Calculated Effluent Limitations (mg/l)</u>		<u>Reasonable Potential</u>		<u>Data Source</u>	<u>No. of Samples</u>	<u>Effluent Requirement</u>		<u>Justification</u>	
		<u>Average</u>	<u>Maximum</u>	<u>Average</u>	<u>Maximum</u>	<u>Average</u>	<u>Maximum</u>			<u>Average</u>	<u>Maximum</u>	<u>Average</u>	<u>Maximum</u>
Parathion	56382	0.000000	0.000000	0.000013	0.000065	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Pentachlorobenzene	608935	0.000000	0.000000	0.001500	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Phthalate esters		0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Total Dissolved Solids		0.000000	0.000000	8,479,500.000000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Tritium		0.000000	0.000000	NA	20,000.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Strontium-90		0.000000	0.000000	NA	8.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Uranium		0.000000	0.000000	NA	0.030000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Ammonia		0.000000	0.000000	3.360911	19.890204	0.00%	0.00%	No Data	0	None	None	Chronic	Acute

Hardness  
 Metal limitations are developed using the mixed hardness of the effluent and receiving waters

Chronic  
 297.00  
 Acute  
 297.00

Toxicity

<u>Type of Test</u>	<u>Maximum</u>	<u>Units</u>	<u>Justification</u>	<u>Percent Effluent</u>
Chronic	1.00	TUc	Chronic	100.00%

**STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002**

<b>Permit Writer</b>	Mahmoud Sartipi	
<b>Date Entered</b>	2/26/2009	
<b>Facility Name</b>	Maysville Mason	
	County Landfill	
<b>KPDES Number</b>	KY0091782	
<b>Outfall Number</b>	002	
<b>Case</b>	Reissuance	
<b>Status:</b>		
Is this an existing facility – Enter “E”	E	
Is this an existing facility with an increase in pollutant load – Enter “I”		
Is this a new facility – Enter “N”		
Is this a regional facility with an approved up-to-date 201 plan – Enter “R”		
Has the permittee made a successful alternatives analysis/socioeconomic demonstration – Enter “A”		
<b>Receiving Water Name</b>	Middle Run	
<b>Discharge Mile Point</b>	1.7	
<b>Public Water Supply Name</b>	Falmouth Water	
	Department	
<b>Intake Water Name</b>	Falmouth Water	
	Department	
<b>Intake Mile Point</b>	52.9	
<b>Total Effluent Flow (Q<sub>T</sub>)</b>	0.0024	MGD
<b>Receiving Water 7Q10 (Q<sub>RW7Q10</sub>)</b>	0	cfs
<b>Receiving Water Harmonic Mean (Q<sub>RWHM</sub>)</b>	0	cfs
<b>Receiving Water pH</b>	7.5	SU
<b>Receiving Water Temperature</b>	20.00	°C
<b>Intake Water 7Q10 (Q<sub>IW7Q10</sub>)</b>	70	cfs
<b>Intake Water Harmonic Mean (Q<sub>IWHM</sub>)</b>	584	cfs
<b>Effluent Hardness</b>	263	(as mg/l CaCO <sub>3</sub> )
<b>Receiving Water Hardness</b>	100	(as mg/l CaCO <sub>3</sub> )
<b>Zone of Initial Dilution (ZID)</b>	1	
<b>Mixing Zone (MZ)</b>	0	
<b>Acute to Chronic Ratio (ACR)</b>	0.1	
<b>Impaired</b>	No	
<b>Permittee agrees to accept no mixing zone for bioaccumulative or persistent pollutants prior to 09/08/2014</b>	Yes	

# STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002

## Calculation Methodology

### Definitions

Acute to Chronic Ratio	ACR	Total Effluent Flow	$Q_T$
Aquatic Life Acute Criteria	$C_A$	Receiving Water 7Q10	$Q_{RW7Q10}$
Aquatic Life Chronic Criteria	$C_C$	Receiving Water Harmonic Mean	$Q_{RWHM}$
Human Health Criteria - Fish Only	$C_{HHFO}$	Intake Water 7Q10	$Q_{IW7Q10}$
Human Health Criteria - Fish & Water	$C_{HHFW}$	Intake Water Harmonic Mean	$Q_{IWHM}$
End of Pipe Effluent Limit	$C_T$	Zone of Initial Dilution	ZID
Instream Background Concentration	$C_U$	Mixing Zone	MZ
Toxicity Units - Acute	$TU_a$	Toxicity Units - Chronic	$TU_c$
Effluent Hardness	$H_T$	Receiving Water Hardness	$H_{RW}$

### Aquatic Life - Chemical Specific

#### Acute

NO ZID given  $C_T = C_A$   
 ZID given  $C_T = (C_A - C_U) \times (ZID)$

#### Chronic Mixing Zone / Complete Mix

$$C_T = \{C_C[Q_T + (MZ)(Q_{RW7Q10})] - [C_U(MZ)(Q_{RW7Q10})]\} / Q_T$$

### Human Health - Chemical Specific

#### Fish Only: Mixing Zone / Complete Mix

Carcinogen / Non-Carcinogen  $C_T = \{C_{HHFO}[Q_T + (MZ)(Q_{RWHM})] - C_U(MZ)(Q_{RWHM})\} / Q_T$

#### Fish & Water Only: Mixing Zone / Applicable at point of withdrawal

Carcinogen  $C_T = \{C_{HHFW}[Q_T + (Q_{IWHM})] - C_U(Q_{IWHM})\} / Q_T$   
 Non-Carcinogen  $C_T = \{C_{HHFW}[Q_T + (Q_{IW7Q10})] - C_U(Q_{IW7Q10})\} / Q_T$

### Aquatic Life - Whole Effluent Toxicity

#### Acute (Units $TU_a$ )

NO ZID given  $C_T = C_A$   
 ZID given  $C_T = (C_A - C_U) \times (ZID)$

#### Chronic Mixing Zone / Complete Mix (Units $TU_c$ )

$C_T = \{C_C[Q_T + (MZ)(Q_{RW7Q10})] - [C_U(MZ)(Q_{RW7Q10})]\} / Q_T$   
 Conversion of  $TU_c$  to  $TU_a$ :  $TU_c \times ACR = TU_a$

## STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002

### Metal Aquatic Criteria

#### Pollutant

Total Recoverable Cadmium  
 Chromium III  
 Total Recoverable Copper  
 Total Recoverable Lead  
 Total Recoverable Nickel  
 Total Recoverable Silver  
 Total Recoverable Zinc

#### Acute Criteria

$e^{(1.0166 (\ln \text{Hardness}) - 3.924)}$   
 $e^{(0.8190 (\ln \text{Hardness}) + 3.7256)}$   
 $e^{(0.9422 (\ln \text{Hardness}) - 1.700)}$   
 $e^{(1.273 (\ln \text{Hardness}) - 1.460)}$   
 $e^{(0.8460 (\ln \text{Hardness}) + 2.255)}$   
 $e^{(1.72 (\ln \text{Hardness}) - 6.59)}$   
 $e^{(0.8473 (\ln \text{Hardness}) + 0.884)}$

#### Chronic Criteria

$e^{(0.7409 (\ln \text{Hardness}) - 4.719)}$   
 $e^{(0.8190 (\ln \text{Hardness}) + 0.6848)}$   
 $e^{(0.8545 (\ln \text{Hardness}) - 1.702)}$   
 $e^{(1.273 (\ln \text{Hardness}) - 4.705)}$   
 $e^{(0.8460 (\ln \text{Hardness}) + 0.0584)}$   
 $e^{(0.8473 (\ln \text{Hardness}) + 0.884)}$

### Hardness (as mg/l CaCO<sub>3</sub>)

Zone Initial Dilution (ZID)  
 Mixing Zone

$$H_{RW} + [H_T + H_{RW}]/ZID$$

$$[(Q_{RW7Q10})(MZ)(H_{RW}) + (Q_T)(H_T)]/[(Q_{RW7Q10})(MZ) + (Q_T)]$$

### Total Ammonia Criteria

Chronic - applies state wide - unionized criteria of 0.05 mg/l

Acute - applies to the Ohio River (ORSANCO Criteria)

$$\frac{[0.05 * (1 + 10^{(pKa - pH)})]^{1.2}}{[0.411 / (1 + 10^{(7.204 - pH)})] + [58.4 / (1 + 10^{(pH - 7.204)})]}$$

$$pKa = (0.0902 + (2730 / (273.1 + T)))$$

T = Temperature °C

### Bioaccumulative or Persistent

For new facilities after September 8, 2004 mixing zones shall not be granted for bioaccumulative or persistent pollutants of concern.

Mixing zones for bioaccumulative or persistent pollutants of concerned assigned prior to September 8, 2004 shall expire no later than September 8, 2014, unless the permittee agrees to expiration of the mixing zone prior to that date.

Therefore, the application of the more stringent criteria of Human Health Fish & Water Consumption, Human Health Fish Only Consumption, and Aquatic Life Chronic shall apply as end-of-pipe effluent limitations.

### Antidegradation

If a new facility or an existing facility that will have a pollutant load increase, the effluent limits are halved unless the receiving stream is impaired or the permittee has demonstrated a negative socioeconomic or cost benefit analysis.

## **STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002**

### **Reasonable Potential Analysis**

In establishing water quality based effluent conditions the Division of Water must determine if the pollutant concentrations in the discharge will cause, have the reasonable potential to cause, or contribute to an excursion of any water standard. The process by which the Division of Water makes this determination is known as a Reasonable Potential Analysis.

A Reasonable Potential Analysis is performed by first calculating the expected effluent limitations for those pollutants with water quality criteria. The calculated limits are then compared to the concentrations reported on the KPDES permit application and/or a summarization of the values reported on the Discharge Monitoring Report (DMRs) submitted during the term of the permit. This comparison is made by dividing the reported value by the calculated effluent limitation and converting to a percentage. The following criteria are used in determining how the pollutant will be addressed in the permit.

### **New Permits or New Pollutants on Permit Renewals**

If the reported concentration is less than 70% of the calculated effluent limit then no monitoring or limitations will be required.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is less than 12 then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is equal or greater than 12 then an effluent limitation will be required.

### **Permit Renewals - Existing Pollutants**

If the reported concentration is less than 70% of the calculated effluent limit then and the source of the reported concentration was the DMRs for that facility and there were more than 12 DMRs utilized to determine the reported concentrations then the pollutant will be removed from the permit.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% then an effluent limitation will be required.

In all cases, the Division of Water still may exercise its Best Professional Judgment in the implementation of the results.



**STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002**

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
Chloride	16887006	54.000000	111.000000	600.000000	1,200.000000	9.00%	9.25%	DMR	4	Monitoring	Monitoring	Chronic	Acute
Total Residual Chlorine		0.000000	0.000000	0.011000	0.019000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Color		0.000000	0.000000	1,413.200000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Fluoride		0.000000	0.000000	37,685.333333	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Nitrate-Nitrite (as N)	14797558	0.000000	0.000000	188,426.666667	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Alpha		0.000000	0.000000	NA	15.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Beta		0.000000	0.000000	NA	50.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Radium		0.000000	0.000000	NA	5.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Sulfate (as SO4)		0.000000	0.000000	4,710,666.666667	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Surfactants		0.000000	0.000000	9,421.333333	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Barium	7440393	0.000000	0.000000	18,842.666667	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Iron	7439896	5.540000	13.400000	1.000000	4.000000	554.00%	335.00%	DMR	4	Limit	Limit	Chronic	Acute
Total Recoverable Antimony	7440360	0.002000	0.002000	0.640000	NA	0.31%	0.00%	DMR	4	Monitoring	Monitoring	HH Fish	NA
Total Recoverable Arsenic	7440382	0.002330	0.003000	0.150000	0.340000	1.55%	0.88%	DMR	3	Monitoring	Monitoring	Chronic	Acute
Total Recoverable Beryllium	7440417	0.002000	0.002000	75.370667	NA	0.00%	0.00%	DMR	3	Monitoring	Monitoring	HH DWS	NA
Total Recoverable Cadmium	7440439	0.002000	0.002000	0.000554	0.005701	361.01%	35.08%	DMR	4	Limit	Monitoring	Chronic	Acute
Total Recoverable Chromium	7440439	0.002250	0.003000	1,884.266667	NA	0.00%	0.00%	DMR	4	Monitoring	Monitoring	HH DWS	NA
Total Recoverable Copper	7440508	0.002000	0.002000	0.021315	0.034816	9.38%	5.74%	DMR	4	Monitoring	Monitoring	Chronic	Acute
Total Recoverable Lead	7439921	0.002000	0.002000	0.010896	0.279598	18.36%	0.72%	DMR	4	Monitoring	Monitoring	Chronic	Acute
Total Recoverable Mercury	7439976	0.000000	0.000000	0.000051	0.001700	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Total Recoverable Nickel	7440020	0.002330	0.003000	0.118208	1.063204	1.97%	0.28%	DMR	3	Monitoring	Monitoring	Chronic	Acute
Total Recoverable Selenium	7782492	0.002000	0.002000	0.005000	0.020000	40.00%	10.00%	DMR	3	Monitoring	Monitoring	Chronic	Acute
Total Recoverable Silver	7440224	0.000000	0.000000	NA	0.019967	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Recoverable Thallium	7440280	0.000670	0.001000	0.006300	NA	10.63%	0.00%	DMR	3	Monitoring	Monitoring	HH Fish	NA
Total Recoverable Zinc	7440666	0.008700	0.013000	0.271860	0.271860	3.20%	4.78%	DMR	3	Monitoring	Monitoring	Chronic	Acute
Free Cyanide	57125	0.000000	0.000000	0.005200	0.022000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
2,3,7,8 Tetrachlorodibenzo P Dioxin	1746016	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acrolein	107028	0.000000	0.000000	0.290000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acrylonitrile	107131	0.000000	0.000000	0.000250	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzene	71432	0.000000	0.000000	0.051000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bromoform	75252	0.000000	0.000000	0.140000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Carbon Tetrachloride	56235	0.000000	0.000000	0.001600	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chlorobenzene	108907	0.000000	0.000000	21.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chlorodibromomethane	124481	0.000000	0.000000	0.013000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chloroform	67663	0.000000	0.000000	0.470000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dichlorobromomethane	75274	0.000000	0.000000	0.017000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichloroethane	107062	0.000000	0.000000	0.037000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1-Dichloroethylene	75354	0.000000	0.000000	0.003200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichloropropane	78875	0.000000	0.000000	0.015000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,3-Dichloropropene	542756	0.000000	0.000000	1.700000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Ethylbenzene	100414	0.000000	0.000000	29.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Methyl Bromide	74839	0.000000	0.000000	1.500000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Methylene Chloride	75092	0.000000	0.000000	0.590000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1,2,2-Tetrachloroethane	79345	0.000000	0.000000	0.004000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Tetrachloroethylene	127184	0.000000	0.000000	0.003300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

**STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002**

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
Toluene	108883	0.000000	0.000000	200.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Trans-Dichloroethylene	156605	0.000000	0.000000	140.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1,1-Trichloroethane	71556	0.000000	0.000000	3,768.533333	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
1,1,2-Trichloroethane	79005	0.000000	0.000000	0.016000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Trichloroethylene	79016	0.000000	0.000000	0.030000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Vinyl Chloride	75014	0.000000	0.000000	0.530000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-Chlorophenol	95578	0.000000	0.000000	0.150000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dichlorophenol	120832	0.000000	0.000000	0.290000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dimethylphenol	105679	0.000000	0.000000	0.850000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dinitrophenol	51285	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Pentachlorophenol	87865	0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Phenol	108952	0.000000	0.000000	1,700.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4,6-Trichlorophenol	88062	0.000000	0.000000	0.002400	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acenaphthene	83329	0.000000	0.000000	0.990000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Anthracene	120127	0.000000	0.000000	40.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benidine	92875	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(a)anthracene	56553	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(a)pyrene	50328	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(k)fluoranthene	205992	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-chloroisopropyl)ether	108601	0.000000	0.000000	65.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-ethylhexyl)phthalate	117817	0.000000	0.000000	0.002200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Butylbenzyl phthalate	85687	0.000000	0.000000	1.900000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-Chloronaphthalene	91587	0.000000	0.000000	1.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chrysene	218019	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dibenzo(a,h)anthracene	53703	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichlorobenzene	95501	0.000000	0.000000	17.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,3-Dichlorobenzene	541731	0.000000	0.000000	0.960000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,4-Dichlorobenzene	106467	0.000000	0.000000	2.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
3,3-Dichlorobenzidine	91941	0.000000	0.000000	0.000028	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Diethyl phthalate	84662	0.000000	0.000000	44.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dimethyl phthalate	131113	0.000000	0.000000	1,100.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Di-n-butyl phthalate	84742	0.000000	0.000000	4.500000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dinitrotoluene	121142	0.000000	0.000000	0.003400	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Diphenylhydrazine	122667	0.000000	0.000000	0.000200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Fluoranthene	206440	0.000000	0.000000	0.140000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Fluorene	86737	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorobenzene	118741	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorobutadiene	87683	0.000000	0.000000	0.018000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorocyclopentadiene	77474	0.000000	0.000000	17.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachloroethane	67721	0.000000	0.000000	0.003300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Ideno(1,2,3-cd)pyrene	193395	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Isophorone	78591	0.000000	0.000000	0.960000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Nitrobenzene	98953	0.000000	0.000000	0.690000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodimethylamine	62759	0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodi-n-Propylamine	621647	0.000000	0.000000	0.000510	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

# STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
N-Nitrosodiphenylamine	86306	0.000000	0.000000	0.006000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Pyrene	129000	0.000000	0.000000	4.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2,4-Trichlorobenzene	120821	0.000000	0.000000	0.940000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Aldrin	309002	0.000000	0.000000	0.000000	0.003000	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
alpha-BHC	319846	0.000000	0.000000	0.000005	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Beta-BHC	319857	0.000000	0.000000	0.000017	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
gamma-BHC (Lindane)	58899	0.000000	0.000000	0.000063	0.000950	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Chlordane	57749	0.000000	0.000000	0.000001	0.002400	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
4,4'-DDT	50293	0.000000	0.000000	0.000000	0.001100	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
4,4'-DDE	72559	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
4,4'-DDD	72548	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dieldrin	60571	0.000000	0.000000	0.000000	0.000240	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Alpha-Endosulfan	959988	0.000000	0.000000	0.000056	0.000220	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Beta-Endosulfan	33213659	0.000000	0.000000	0.000056	0.000220	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Endosulfan sulfate	1031078	0.000000	0.000000	0.089000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Endrin	72208	0.000000	0.000000	0.000086	0.000086	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Endrin aldehyde	7421934	0.000000	0.000000	0.000300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Heptachlor	76448	0.000000	0.000000	0.000000	0.000520	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Heptachlor epoxide	1024573	0.000000	0.000000	0.000000	0.000520	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Polychlorinated Biphenyls (PCBs)		0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Toxaphene	8001352	0.000000	0.000000	0.000000	0.000730	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
1,2,4,5-Tetrachlorobenzene	95943	0.000000	0.000000	0.001100	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-methyl-4,6-dinitrophenol	534521	0.000000	0.000000	0.280000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-D	94757	0.000000	0.000000	11,003.603333	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,5-TP (Silvex)	93721	0.000000	0.000000	188.426667	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,5-trichlorophenol	95954	0.000000	0.000000	3.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Asbestos	1332214	0.000000	0.000000	1,100,360,333.333330	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Benzo(b)fluoranthene	205992	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-chloroethyl)ether	111444	0.000000	0.000000	0.000530	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(chloromethyl)ether	542881	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chloropyrifos	2921882	0.000000	0.000000	0.000041	0.000083	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Chromium (III)	16065831	0.000000	0.000000	0.190260	3.980625	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Chromium (VI)	18540299	0.000000	0.000000	0.011000	0.016000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Demeton	8065483	0.000000	0.000000	0.000100	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Dinitrophenols	25550587	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Guthion	86500	0.000000	0.000000	0.000010	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Hexachlorocyclo-hexane-Technical	319868	0.000000	0.000000	0.000041	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hydrogen Sulfide, Undissociated	7783064	0.000000	0.000000	0.002000	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Malathion	121755	0.000000	0.000000	0.000100	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Methoxychlor	72435	0.000000	0.000000	0.000030	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Mirex	2385855	0.000000	0.000000	0.000001	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Nitrosamines, Other		0.000000	0.000000	0.001240	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodibutylamine	924163	0.000000	0.000000	0.000220	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodiethylamine	55185	0.000000	0.000000	0.001240	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosopyrrolidine	930552	0.000000	0.000000	0.034000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

# STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
Parathion	56382	0.000000	0.000000	0.000013	0.000065	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Pentachlorobenzene	608935	0.000000	0.000000	0.001500	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Phthalate esters		0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Total Dissolved Solids		0.000000	0.000000	14,132,000.000000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Tritium		0.000000	0.000000	NA	20,000.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Strontium-90		0.000000	0.000000	NA	8.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Uranium		0.000000	0.000000	NA	0.030000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Ammonia		0.000000	0.000000	3.360911	19.890204	0.00%	0.00%	No Data	0	None	None	Chronic	Acute

Hardness  
 Metal limitations are developed using the mixed hardness of the effluent and receiving waters

Chronic  
 263.00  
 Acute  
 263.00

## Toxicity

Type of Test	Maximum	Units	Justification	Percent Effluent
Chronic	1.00	TUc	Chronic	100.00%

**STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 003**

<b>Permit Writer</b>	Mahmoud Sartipi	
<b>Date Entered</b>	2/26/2009	
<b>Facility Name</b>	Maysville Mason	
	County Landfill	
<b>KPDES Number</b>	KY0091782	
<b>Outfall Number</b>	003	
<b>Case</b>	Reissuance	
<b>Status:</b>		
Is this an existing facility – Enter “E”	E	
Is this an existing facility with an increase in pollutant load – Enter “I”		
Is this a new facility – Enter “N”		
Is this a regional facility with an approved up-to-date 201 plan – Enter “R”		
Has the permittee made a successful alternatives analysis/socioeconomic demonstration – Enter “A”		
<b>Receiving Water Name</b>	Middle Run	
<b>Discharge Mile Point</b>	1.9	
<b>Public Water Supply Name</b>	Falmouth Water	
	Department	
<b>Intake Water Name</b>	Falmouth Water	
	Department	
<b>Intake Mile Point</b>	52.9	
<b>Total Effluent Flow (Q<sub>T</sub>)</b>	0.0122	MGD
<b>Receiving Water 7Q10 (Q<sub>RW7Q10</sub>)</b>	0	cfs
<b>Receiving Water Harmonic Mean (Q<sub>RWHM</sub>)</b>	0	cfs
<b>Receiving Water pH</b>	7.5	SU
<b>Receiving Water Temperature</b>	20.00	°C
<b>Intake Water 7Q10 (Q<sub>IW7Q10</sub>)</b>	70	cfs
<b>Intake Water Harmonic Mean (Q<sub>IWHM</sub>)</b>	584	cfs
<b>Effluent Hardness</b>	278	(as mg/l CaCO <sub>3</sub> )
<b>Receiving Water Hardness</b>	100	(as mg/l CaCO <sub>3</sub> )
<b>Zone of Initial Dilution (ZID)</b>	1	
<b>Mixing Zone (MZ)</b>	0	
<b>Acute to Chronic Ratio (ACR)</b>	0.1	
<b>Impaired</b>	No	
<b>Permittee agrees to accept no mixing zone for bioaccumulative or persistent pollutants prior to 09/08/2014</b>	Yes	

# STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 003

## Calculation Methodology

### Definitions

Acute to Chronic Ratio	ACR	Total Effluent Flow	$Q_T$
Aquatic Life Acute Criteria	$C_A$	Receiving Water 7Q10	$Q_{RW7Q10}$
Aquatic Life Chronic Criteria	$C_C$	Receiving Water Harmonic Mean	$Q_{RWHM}$
Human Health Criteria - Fish Only	$C_{HHFO}$	Intake Water 7Q10	$Q_{IW7Q10}$
Human Health Criteria - Fish & Water	$C_{HHFW}$	Intake Water Harmonic Mean	$Q_{IWHM}$
End of Pipe Effluent Limit	$C_T$	Zone of Initial Dilution	ZID
Instream Background Concentration	$C_U$	Mixing Zone	MZ
Toxicity Units - Acute	$TU_a$	Toxicity Units - Chronic	$TU_c$
Effluent Hardness	$H_T$	Receiving Water Hardness	$H_{RW}$

### Aquatic Life - Chemical Specific

#### Acute

NO ZID given  $C_T = C_A$   
 ZID given  $C_T = (C_A - C_U) \times (ZID)$

#### Chronic Mixing Zone / Complete Mix

$$C_T = \{C_C[Q_T + (MZ)(Q_{RW7Q10})] - [C_U(MZ)(Q_{RW7Q10})]\} / Q_T$$

### Human Health - Chemical Specific

#### Fish Only: Mixing Zone / Complete Mix

Carcinogen / Non-Carcinogen  $C_T = \{C_{HHFO}[Q_T + (MZ)(Q_{RWHM})] - C_U(MZ)(Q_{RWHM})\} / Q_T$

#### Fish & Water Only: Mixing Zone / Applicable at point of withdrawal

Carcinogen  $C_T = \{C_{HHFW}[Q_T + (Q_{IWHM})] - C_U(Q_{IWHM})\} / Q_T$   
 Non-Carcinogen  $C_T = \{C_{HHFW}[Q_T + (Q_{IW7Q10})] - C_U(Q_{IW7Q10})\} / Q_T$

### Aquatic Life - Whole Effluent Toxicity

#### Acute (Units $TU_a$ )

NO ZID given  $C_T = C_A$   
 ZID given  $C_T = (C_A - C_U) \times (ZID)$

#### Chronic Mixing Zone / Complete Mix (Units $TU_c$ )

$C_T = \{C_C[Q_T + (MZ)(Q_{RW7Q10})] - [C_U(MZ)(Q_{RW7Q10})]\} / Q_T$   
 Conversion of  $TU_c$  to  $TU_a$ :  $TU_c \times ACR = TU_a$

## STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 003

### Metal Aquatic Criteria

#### Pollutant

Total Recoverable Cadmium  
 Chromium III  
 Total Recoverable Copper  
 Total Recoverable Lead  
 Total Recoverable Nickel  
 Total Recoverable Silver  
 Total Recoverable Zinc

#### Acute Criteria

$e^{(1.0166 (\ln \text{Hardness}) - 3.924)}$   
 $e^{(0.8190 (\ln \text{Hardness}) + 3.7256)}$   
 $e^{(0.9422 (\ln \text{Hardness}) - 1.700)}$   
 $e^{(1.273 (\ln \text{Hardness}) - 1.460)}$   
 $e^{(0.8460 (\ln \text{Hardness}) + 2.255)}$   
 $e^{(1.72 (\ln \text{Hardness}) - 6.59)}$   
 $e^{(0.8473 (\ln \text{Hardness}) + 0.884)}$

#### Chronic Criteria

$e^{(0.7409 (\ln \text{Hardness}) - 4.719)}$   
 $e^{(0.8190 (\ln \text{Hardness}) + 0.6848)}$   
 $e^{(0.8545 (\ln \text{Hardness}) - 1.702)}$   
 $e^{(1.273 (\ln \text{Hardness}) - 4.705)}$   
 $e^{(0.8460 (\ln \text{Hardness}) + 0.0584)}$   
 $e^{(0.8473 (\ln \text{Hardness}) + 0.884)}$

### Hardness (as mg/l CaCO<sub>3</sub>)

Zone Initial Dilution (ZID)  
 Mixing Zone

$$H_{RW} + [H_T + H_{RW}]/ZID$$

$$[(Q_{RW7Q10})(MZ)(H_{RW}) + (Q_T)(H_T)]/[(Q_{RW7Q10})(MZ) + (Q_T)]$$

### Total Ammonia Criteria

Chronic - applies state wide - unionized criteria of 0.05 mg/l

Acute - applies to the Ohio River (ORSANCO Criteria)

$$\frac{[0.05 * (1 + 10^{(pKa - pH)})]^{1.2}}{[0.411 / (1 + 10^{(7.204 - pH)})] + [58.4 / (1 + 10^{(pH - 7.204)})]}$$

$$pKa = (0.0902 + (2730 / (273.1 + T)))$$

T = Temperature °C

### Bioaccumulative or Persistent

For new facilities after September 8, 2004 mixing zones shall not be granted for bioaccumulative or persistent pollutants of concern.

Mixing zones for bioaccumulative or persistent pollutants of concerned assigned prior to September 8, 2004 shall expire no later than September 8, 2014, unless the permittee agrees to expiration of the mixing zone prior to that date.

Therefore, the application of the more stringent criteria of Human Health Fish & Water Consumption, Human Health Fish Only Consumption, and Aquatic Life Chronic shall apply as end-of-pipe effluent limitations.

### Antidegradation

If a new facility or an existing facility that will have a pollutant load increase, the effluent limits are halved unless the receiving stream is impaired or the permittee has demonstrated a negative socioeconomic or cost benefit analysis.

## **STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 003**

### **Reasonable Potential Analysis**

In establishing water quality based effluent conditions the Division of Water must determine if the pollutant concentrations in the discharge will cause, have the reasonable potential to cause, or contribute to an excursion of any water standard. The process by which the Division of Water makes this determination is known as a Reasonable Potential Analysis.

A Reasonable Potential Analysis is performed by first calculating the expected effluent limitations for those pollutants with water quality criteria. The calculated limits are then compared to the concentrations reported on the KPDES permit application and/or a summarization of the values reported on the Discharge Monitoring Report (DMRs) submitted during the term of the permit. This comparison is made by dividing the reported value by the calculated effluent limitation and converting to a percentage. The following criteria are used in determining how the pollutant will be addressed in the permit.

### **New Permits or New Pollutants on Permit Renewals**

If the reported concentration is less than 70% of the calculated effluent limit then no monitoring or limitations will be required.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is less than 12 then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is equal or greater than 12 then an effluent limitation will be required.

### **Permit Renewals - Existing Pollutants**

If the reported concentration is less than 70% of the calculated effluent limit then and the source of the reported concentration was the DMRs for that facility and there were more than 12 DMRs utilized to determine the reported concentrations then the pollutant will be removed from the permit.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% then an effluent limitation will be required.

In all cases, the Division of Water still may exercise its Best Professional Judgment in the implementation of the results.



**STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 003**

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
Chloride	16887006	31.000000	353.000000	600.000000	1,200.000000	5.17%	29.42%	DMR	44	Remove	Remove	Chronic	Acute
Total Residual Chlorine		0.000000	0.000000	0.011000	0.019000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Color		0.000000	0.000000	278.066803	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Fluoride		0.000000	0.000000	7,415.114754	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Nitrate-Nitrite (as N)	14797558	0.000000	0.000000	37,075.573770	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Alpha		0.000000	0.000000	NA	15.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Beta		0.000000	0.000000	NA	50.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Radium		0.000000	0.000000	NA	5.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Sulfate (as SO4)		0.000000	0.000000	926,889.344262	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Surfactants		0.000000	0.000000	1,853.778689	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Barium	7440393	0.000000	0.000000	3,707.557377	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Iron	7439896	0.920000	3.150000	1.000000	4.000000	92.00%	78.75%	DMR	44	Limit	Monitoring	Chronic	Acute
Total Recoverable Antimony	7440360	0.002500	0.009000	0.640000	NA	0.39%	0.00%	DMR	16	Remove	Remove	HH Fish	NA
Total Recoverable Arsenic	7440382	0.003820	0.008000	0.150000	0.340000	2.55%	2.35%	DMR	16	Remove	Remove	Chronic	Acute
Total Recoverable Beryllium	7440417	0.002000	0.002000	14.830230	NA	0.01%	0.00%	DMR	16	Remove	Remove	HH DWS	NA
Total Recoverable Cadmium	7440439	0.002000	0.002000	0.000577	0.006032	346.48%	33.16%	DMR	16	Limit	Remove	Chronic	Acute
Total Recoverable Chromium	7440439	0.002060	0.004000	370.755738	NA	0.00%	0.00%	DMR	16	Remove	Remove	HH DWS	NA
Total Recoverable Copper	7440508	0.002560	0.007000	0.022349	0.036684	11.45%	19.08%	DMR	16	Remove	Remove	Chronic	Acute
Total Recoverable Lead	7439921	0.002380	0.008000	0.011693	0.300054	20.35%	2.67%	DMR	16	Remove	Remove	Chronic	Acute
Total Recoverable Mercury	7439976	0.000000	0.000000	0.000051	0.001700	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Total Recoverable Nickel	7440020	0.002600	0.005800	0.123887	1.114284	2.10%	0.52%	DMR	16	Remove	Remove	Chronic	Acute
Total Recoverable Selenium	7782492	0.002210	0.004000	0.005000	0.020000	44.20%	20.00%	DMR	16	Remove	Remove	Chronic	Acute
Total Recoverable Silver	7440224	0.000000	0.000000	NA	0.021966	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Recoverable Thallium	7440280	0.000930	0.005000	0.006300	NA	14.76%	0.00%	DMR	16	Remove	Remove	HH Fish	NA
Total Recoverable Zinc	7440666	0.016390	0.072000	0.284941	0.284941	5.75%	25.27%	DMR	16	Remove	Remove	Chronic	Acute
Free Cyanide	57125	0.000000	0.000000	0.005200	0.022000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
2,3,7,8 Tetrachlorodibenzo P Dioxin	1746016	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acrolein	107028	0.000000	0.000000	0.290000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acrylonitrile	107131	0.000000	0.000000	0.000250	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzene	71432	0.000000	0.000000	0.051000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bromoform	75252	0.000000	0.000000	0.140000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Carbon Tetrachloride	56235	0.000000	0.000000	0.001600	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chlorobenzene	108907	0.000000	0.000000	21.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chlorodibromomethane	124481	0.000000	0.000000	0.013000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chloroform	67663	0.000000	0.000000	0.470000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dichlorobromomethane	75274	0.000000	0.000000	0.017000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichloroethane	107062	0.000000	0.000000	0.037000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1-Dichloroethylene	75354	0.000000	0.000000	0.003200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichloropropane	78875	0.000000	0.000000	0.015000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,3-Dichloropropene	542756	0.000000	0.000000	1.700000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Ethylbenzene	100414	0.000000	0.000000	29.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Methyl Bromide	74839	0.000000	0.000000	1.500000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Methylene Chloride	75092	0.000000	0.000000	0.590000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1,2,2-Tetrachloroethane	79345	0.000000	0.000000	0.004000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Tetrachloroethylene	127184	0.000000	0.000000	0.003300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

# STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 003

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
Toluene	108883	0.000000	0.000000	200.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Trans-Dichloroethylene	156605	0.000000	0.000000	140.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1,1-Trichloroethane	71556	0.000000	0.000000	741.511475	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
1,1,2-Trichloroethane	79005	0.000000	0.000000	0.016000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Trichloroethylene	79016	0.000000	0.000000	0.030000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Vinyl Chloride	75014	0.000000	0.000000	0.530000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-Chlorophenol	95578	0.000000	0.000000	0.150000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dichlorophenol	120832	0.000000	0.000000	0.290000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dimethylphenol	105679	0.000000	0.000000	0.850000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dinitrophenol	51285	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Pentachlorophenol	87865	0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Phenol	108952	0.000000	0.000000	1,700.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4,6-Trichlorophenol	88062	0.000000	0.000000	0.002400	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acenaphthene	83329	0.000000	0.000000	0.990000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Anthracene	120127	0.000000	0.000000	40.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benidine	92875	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(a)anthracene	56553	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(a)pyrene	50328	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(k)fluoranthene	205992	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-chloroisopropyl)ether	108601	0.000000	0.000000	65.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-ethylhexyl)phthalate	117817	0.000000	0.000000	0.002200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Butylbenzyl phthalate	85687	0.000000	0.000000	1.900000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-Chloronaphthalene	91587	0.000000	0.000000	1.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chrysene	218019	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dibenzo(a,h)anthracene	53703	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichlorobenzene	95501	0.000000	0.000000	17.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,3-Dichlorobenzene	541731	0.000000	0.000000	0.960000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,4-Dichlorobenzene	106467	0.000000	0.000000	2.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
3,3-Dichlorobenzidine	91941	0.000000	0.000000	0.000028	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Diethyl phthalate	84662	0.000000	0.000000	44.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dimethyl phthalate	131113	0.000000	0.000000	1,100.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Di-n-butyl phthalate	84742	0.000000	0.000000	4.500000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dinitrotoluene	121142	0.000000	0.000000	0.003400	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Diphenylhydrazine	122667	0.000000	0.000000	0.000200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Fluoranthene	206440	0.000000	0.000000	0.140000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Fluorene	86737	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorobenzene	118741	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorobutadiene	87683	0.000000	0.000000	0.018000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorocyclopentadiene	77474	0.000000	0.000000	17.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachloroethane	67721	0.000000	0.000000	0.003300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Ideno(1,2,3-cd)pyrene	193395	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Isophorone	78591	0.000000	0.000000	0.960000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Nitrobenzene	98953	0.000000	0.000000	0.690000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodimethylamine	62759	0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodi-n-Propylamine	621647	0.000000	0.000000	0.000510	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

# STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 003

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
N-Nitrosodiphenylamine	86306	0.000000	0.000000	0.006000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Pyrene	129000	0.000000	0.000000	4.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2,4-Trichlorobenzene	120821	0.000000	0.000000	0.940000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Aldrin	309002	0.000000	0.000000	0.000000	0.003000	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
alpha-BHC	319846	0.000000	0.000000	0.000005	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Beta-BHC	319857	0.000000	0.000000	0.000017	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
gamma-BHC (Lindane)	58899	0.000000	0.000000	0.000063	0.000950	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Chlordane	57749	0.000000	0.000000	0.000001	0.002400	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
4,4'-DDT	50293	0.000000	0.000000	0.000000	0.001100	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
4,4'-DDE	72559	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
4,4'-DDD	72548	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dieldrin	60571	0.000000	0.000000	0.000000	0.000240	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Alpha-Endosulfan	959988	0.000000	0.000000	0.000056	0.000220	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Beta-Endosulfan	33213659	0.000000	0.000000	0.000056	0.000220	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Endosulfan sulfate	1031078	0.000000	0.000000	0.089000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Endrin	72208	0.000000	0.000000	0.000036	0.000086	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Endrin aldehyde	7421934	0.000000	0.000000	0.000300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Heptachlor	76448	0.000000	0.000000	0.000000	0.000520	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Heptachlor epoxide	1024573	0.000000	0.000000	0.000000	0.000520	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Polychlorinated Biphenyls (PCBs)		0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Toxaphene	8001352	0.000000	0.000000	0.000000	0.000730	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
1,2,4,5-Tetrachlorobenzene	95943	0.000000	0.000000	0.001100	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-methyl-4,6-dinitrophenol	534521	0.000000	0.000000	0.280000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-D	94757	0.000000	0.000000	2,164.699508	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,5-TP (Silvex)	93721	0.000000	0.000000	37.075574	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,5-trichlorophenol	95954	0.000000	0.000000	3.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Asbestos	1332214	0.000000	0.000000	216,469,950.819672	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Benzo(b)fluoranthene	205992	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-chloroethyl)ether	111444	0.000000	0.000000	0.000530	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(chloromethyl)ether	542881	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chloropyrifos	2921882	0.000000	0.000000	0.000041	0.000083	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Chromium (III)	16065831	0.000000	0.000000	0.199103	4.165625	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Chromium (VI)	18540299	0.000000	0.000000	0.011000	0.016000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Demeton	8065483	0.000000	0.000000	0.000100	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Dinitrophenols	25550587	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Guthion	86500	0.000000	0.000000	0.000010	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Hexachlorocyclo-hexane-Technical	319868	0.000000	0.000000	0.000041	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hydrogen Sulfide, Undissociated	7783064	0.000000	0.000000	0.002000	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Malathion	121755	0.000000	0.000000	0.000100	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Methoxychlor	72435	0.000000	0.000000	0.000030	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Mirex	2385855	0.000000	0.000000	0.000001	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Nitrosamines, Other		0.000000	0.000000	0.001240	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodibutylamine	924163	0.000000	0.000000	0.000220	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodiethylamine	55185	0.000000	0.000000	0.001240	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosopyrrolidine	930552	0.000000	0.000000	0.034000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

**STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 003**

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
	Average	Maximum	Average	Maximum	Average	Maximum	Average			Maximum	Average	Maximum	Average
Parathion	56382	0.000000	0.000000	0.000013	0.000065	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Pentachlorobenzene	608935	0.000000	0.000000	0.001500	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Phthalate esters		0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Total Dissolved Solids		0.000000	0.000000	2,780,668.032787	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Tritium		0.000000	0.000000	NA	20,000.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Strontium-90		0.000000	0.000000	NA	8.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Uranium		0.000000	0.000000	NA	0.030000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Ammonia		0.000000	0.000000	3.360911	19.890204	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Hardness	Chronic	Acute											
Metal limitations are developed using the mixed hardness of the effluent and receiving waters	278.00	278.00											
Toxicity													
Type of Test	Maximum	Units	Justification	Percent Effluent									
Chronic	1.00	TUc	Chronic	100.00%									

**STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 004**

<b>Permit Writer</b>	Mahmoud Sartipi	
<b>Date Entered</b>	2/26/2009	
<b>Facility Name</b>	Maysville Mason	
	County Landfill	
<b>KPDES Number</b>	KY0091782	
<b>Outfall Number</b>	004	
<b>Case</b>	Reissuance	
<b>Status:</b>		
Is this an existing facility – Enter “E”	E	
Is this an existing facility with an increase in pollutant load – Enter “I”		
Is this a new facility – Enter “N”		
Is this a regional facility with an approved up-to-date 201 plan – Enter “R”		
Has the permittee made a successful alternatives analysis/socioeconomic demonstration – Enter “A”		
<b>Receiving Water Name</b>	Middle Run	
<b>Discharge Mile Point</b>	1	
<b>Public Water Supply Name</b>	Falmouth Water	
	Department	
<b>Intake Water Name</b>	Falmouth Water	
	Department	
<b>Intake Mile Point</b>	52.9	
<b>Total Effluent Flow (Q<sub>T</sub>)</b>	0.0225	MGD
<b>Receiving Water 7Q10 (Q<sub>RW7Q10</sub>)</b>	0	cfs
<b>Receiving Water Harmonic Mean (Q<sub>RWHM</sub>)</b>	0	cfs
<b>Receiving Water pH</b>	7.5	SU
<b>Receiving Water Temperature</b>	20.00	°C
<b>Intake Water 7Q10 (Q<sub>IW7Q10</sub>)</b>	70	cfs
<b>Intake Water Harmonic Mean (Q<sub>IWHM</sub>)</b>	584	cfs
<b>Effluent Hardness</b>	360	(as mg/l CaCO <sub>3</sub> )
<b>Receiving Water Hardness</b>	100	(as mg/l CaCO <sub>3</sub> )
<b>Zone of Initial Dilution (ZID)</b>	1	
<b>Mixing Zone (MZ)</b>	0	
<b>Acute to Chronic Ratio (ACR)</b>	0.1	
<b>Impaired</b>	No	
<b>Permittee agrees to accept no mixing zone for bioaccumulative or persistent pollutants prior to 09/08/2014</b>	Yes	

# STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 004

## Calculation Methodology

### Definitions

Acute to Chronic Ratio	ACR	Total Effluent Flow	$Q_T$
Aquatic Life Acute Criteria	$C_A$	Receiving Water 7Q10	$Q_{RW7Q10}$
Aquatic Life Chronic Criteria	$C_C$	Receiving Water Harmonic Mean	$Q_{RWHM}$
Human Health Criteria - Fish Only	$C_{HHFO}$	Intake Water 7Q10	$Q_{IW7Q10}$
Human Health Criteria - Fish & Water	$C_{HHFW}$	Intake Water Harmonic Mean	$Q_{IWHM}$
End of Pipe Effluent Limit	$C_T$	Zone of Initial Dilution	ZID
Instream Background Concentration	$C_U$	Mixing Zone	MZ
Toxicity Units - Acute	$TU_a$	Toxicity Units - Chronic	$TU_c$
Effluent Hardness	$H_T$	Receiving Water Hardness	$H_{RW}$

### Aquatic Life - Chemical Specific

#### Acute

NO ZID given  $C_T = C_A$

ZID given  $C_T = (C_A - C_U) \times (ZID)$

#### Chronic Mixing Zone / Complete Mix

$$C_T = \{C_C[Q_T + (MZ)(Q_{RW7Q10})] - [C_U(MZ)(Q_{RW7Q10})]\} / Q_T$$

### Human Health - Chemical Specific

#### Fish Only: Mixing Zone / Complete Mix

Carcinogen / Non-Carcinogen  $C_T = \{C_{HHFO}[Q_T + (MZ)(Q_{RWHM})] - C_U(MZ)(Q_{RWHM})\} / Q_T$

#### Fish & Water Only: Mixing Zone / Applicable at point of withdrawal

Carcinogen  $C_T = \{C_{HHFW}[Q_T + (Q_{IWHM})] - C_U(Q_{IWHM})\} / Q_T$

Non-Carcinogen  $C_T = \{C_{HHFW}[Q_T + (Q_{IW7Q10})] - C_U(Q_{IW7Q10})\} / Q_T$

### Aquatic Life - Whole Effluent Toxicity

#### Acute (Units $TU_a$ )

NO ZID given  $C_T = C_A$

ZID given  $C_T = (C_A - C_U) \times (ZID)$

#### Chronic Mixing Zone / Complete Mix (Units $TU_c$ )

$$C_T = \{C_C[Q_T + (MZ)(Q_{RW7Q10})] - [C_U(MZ)(Q_{RW7Q10})]\} / Q_T$$

Conversion of  $TU_c$  to  $TU_a$ :  $TU_c \times ACR = TU_a$

## STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 004

### Metal Aquatic Criteria

#### Pollutant

Total Recoverable Cadmium  
 Chromium III  
 Total Recoverable Copper  
 Total Recoverable Lead  
 Total Recoverable Nickel  
 Total Recoverable Silver  
 Total Recoverable Zinc

#### Acute Criteria

$e^{(1.0166 (\ln \text{Hardness}) - 3.924)}$   
 $e^{(0.8190 (\ln \text{Hardness}) + 3.7256)}$   
 $e^{(0.9422 (\ln \text{Hardness}) - 1.700)}$   
 $e^{(1.273 (\ln \text{Hardness}) - 1.460)}$   
 $e^{(0.8460 (\ln \text{Hardness}) + 2.255)}$   
 $e^{(1.72 (\ln \text{Hardness}) - 6.59)}$   
 $e^{(0.8473 (\ln \text{Hardness}) + 0.884)}$

#### Chronic Criteria

$e^{(0.7409 (\ln \text{Hardness}) - 4.719)}$   
 $e^{(0.8190 (\ln \text{Hardness}) + 0.6848)}$   
 $e^{(0.8545 (\ln \text{Hardness}) - 1.702)}$   
 $e^{(1.273 (\ln \text{Hardness}) - 4.705)}$   
 $e^{(0.8460 (\ln \text{Hardness}) + 0.0584)}$   
 $e^{(0.8473 (\ln \text{Hardness}) + 0.884)}$

### Hardness (as mg/l CaCO<sub>3</sub>)

Zone Initial Dilution (ZID)  
 Mixing Zone

$$H_{RW} + [H_T + H_{RW}]/ZID$$

$$[(Q_{RW7Q10})(MZ)(H_{RW}) + (Q_T)(H_T)]/[(Q_{RW7Q10})(MZ) + (Q_T)]$$

### Total Ammonia Criteria

Chronic - applies state wide - unionized criteria of 0.05 mg/l

Acute - applies to the Ohio River (ORSANCO Criteria)

$$[0.05 * (1 + 10^{(pKa - pH)})] / 1.2$$

$$[0.411 / (1 + 10^{(7.204 - pH)})] + [58.4 / (1 + 10^{(pH - 7.204)})]$$

$$pKa = (0.0902 + (2730 / (273.1 + T)))$$

T = Temperature °C

### Bioaccumulative or Persistent

For new facilities after September 8, 2004 mixing zones shall not be granted for bioaccumulative or persistent pollutants of concern.

Mixing zones for bioaccumulative or persistent pollutants of concerned assigned prior to September 8, 2004 shall expire no later than September 8, 2014, unless the permittee agrees to expiration of the mixing zone prior to that date.

Therefore, the application of the more stringent criteria of Human Health Fish & Water Consumption, Human Health Fish Only Consumption, and Aquatic Life Chronic shall apply as end-of-pipe effluent limitations.

### Antidegradation

If a new facility or an existing facility that will have a pollutant load increase, the effluent limits are halved unless the receiving stream is impaired or the permittee has demonstrated a negative socioeconomic or cost benefit analysis.

## **STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 004**

### **Reasonable Potential Analysis**

In establishing water quality based effluent conditions the Division of Water must determine if the pollutant concentrations in the discharge will cause, have the reasonable potential to cause, or contribute to an excursion of any water standard. The process by which the Division of Water makes this determination is known as a Reasonable Potential Analysis.

A Reasonable Potential Analysis is performed by first calculating the expected effluent limitations for those pollutants with water quality criteria. The calculated limits are then compared to the concentrations reported on the KPDES permit application and/or a summarization of the values reported on the Discharge Monitoring Report (DMRs) submitted during the term of the permit. This comparison is made by dividing the reported value by the calculated effluent limitation and converting to a percentage. The following criteria are used in determining how the pollutant will be addressed in the permit.

### **New Permits or New Pollutants on Permit Renewals**

If the reported concentration is less than 70% of the calculated effluent limit then no monitoring or limitations will be required.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is less than 12 then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is equal or greater than 12 then an effluent limitation will be required.

### **Permit Renewals - Existing Pollutants**

If the reported concentration is less than 70% of the calculated effluent limit then and the source of the reported concentration was the DMRs for that facility and there were more than 12 DMRs utilized to determine the reported concentrations then the pollutant will be removed from the permit.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% then an effluent limitation will be required.

In all cases, the Division of Water still may exercise its Best Professional Judgment in the implementation of the results.



**STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 004**

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
Chloride	16887006	73.000000	914.000000	600.000000	1,200.000000	12.17%	76.17%	DMR	39	Remove	Monitoring	Chronic	Acute
Total Residual Chlorine		0.000000	0.000000	0.011000	0.019000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Color		0.000000	0.000000	150.808333	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Fluoride		0.000000	0.000000	4,021.555556	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Nitrate-Nitrite (as N)	14797558	0.000000	0.000000	20,107.777778	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Alpha		0.000000	0.000000	NA	15.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Beta		0.000000	0.000000	NA	50.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Radium		0.000000	0.000000	NA	5.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Sulfate (as SO4)		0.000000	0.000000	502,694.444444	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Surfactants		0.000000	0.000000	1,005.388889	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Barium	7440393	0.000000	0.000000	2,010.777778	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Iron	7439896	11.410000	65.500000	1.000000	4.000000	1141.00%	1637.50%	DMR	40	Limit	Limit	Chronic	Acute
Total Recoverable Antimony	7440360	0.035300	0.009000	0.640000	NA	5.52%	0.00%	DMR	15	Remove	Remove	HH Fish	NA
Total Recoverable Arsenic	7440382	0.005400	0.023000	0.150000	0.340000	3.60%	6.76%	DMR	15	Remove	Remove	Chronic	Acute
Total Recoverable Beryllium	7440417	0.005730	0.058000	8.043111	NA	0.07%	0.00%	DMR	15	Remove	Remove	HH DWS	NA
Total Recoverable Cadmium	7440439	0.002000	0.002000	0.000699	0.007845	286.09%	25.50%	DMR	15	Limit	Remove	Chronic	Acute
Total Recoverable Chromium	7440439	0.011900	0.046000	201.077778	NA	0.01%	0.00%	DMR	15	Remove	Remove	HH DWS	NA
Total Recoverable Copper	7440508	0.009450	0.030600	0.027873	0.046800	33.90%	65.38%	DMR	15	Remove	Remove	Chronic	Acute
Total Recoverable Lead	7439921	0.005880	0.015000	0.016249	0.416968	36.19%	3.60%	DMR	15	Remove	Remove	Chronic	Acute
Total Recoverable Mercury	7439976	0.000000	0.000000	0.000051	0.001700	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Total Recoverable Nickel	7440020	0.026600	0.204000	0.154168	1.386647	17.25%	14.71%	DMR	15	Remove	Remove	Chronic	Acute
Total Recoverable Selenium	7782492	0.002200	0.004000	0.005000	0.020000	44.00%	20.00%	DMR	15	Remove	Remove	Chronic	Acute
Total Recoverable Silver	7440224	0.000000	0.000000	NA	0.034264	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Recoverable Thallium	7440280	0.000930	0.005000	0.006300	NA	14.76%	0.00%	DMR	15	Remove	Remove	HH Fish	NA
Total Recoverable Zinc	7440666	0.077500	0.275000	0.354708	0.354708	21.85%	77.53%	DMR	15	Remove	Monitoring	Chronic	Acute
Free Cyanide	57125	0.000000	0.000000	0.005200	0.022000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
2,3,7,8 Tetrachlorodibenzo P Dioxin	1746016	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acrolein	107028	0.000000	0.000000	0.290000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acrylonitrile	107131	0.000000	0.000000	0.000250	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzene	71432	0.000000	0.000000	0.051000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bromoform	75252	0.000000	0.000000	0.140000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Carbon Tetrachloride	56235	0.000000	0.000000	0.001600	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chlorobenzene	108907	0.000000	0.000000	21.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chlorodibromomethane	124481	0.000000	0.000000	0.013000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chloroform	67663	0.000000	0.000000	0.470000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dichlorobromomethane	75274	0.000000	0.000000	0.017000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichloroethane	107062	0.000000	0.000000	0.037000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1-Dichloroethylene	75354	0.000000	0.000000	0.003200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichloropropane	78875	0.000000	0.000000	0.015000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,3-Dichloropropene	542756	0.000000	0.000000	1.700000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Ethylbenzene	100414	0.000000	0.000000	29.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Methyl Bromide	74839	0.000000	0.000000	1.500000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Methylene Chloride	75092	0.000000	0.000000	0.590000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1,2,2-Tetrachloroethane	79345	0.000000	0.000000	0.004000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Tetrachloroethylene	127184	0.000000	0.000000	0.003300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

**STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 004**

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
Toluene	108883	0.000000	0.000000	200.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Trans-Dichloroethylene	156605	0.000000	0.000000	140.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1,1-Trichloroethane	71556	0.000000	0.000000	402.155556	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
1,1,2-Trichloroethane	79005	0.000000	0.000000	0.016000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Trichloroethylene	79016	0.000000	0.000000	0.030000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Vinyl Chloride	75014	0.000000	0.000000	0.530000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-Chlorophenol	95578	0.000000	0.000000	0.150000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dichlorophenol	120832	0.000000	0.000000	0.290000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dimethylphenol	105679	0.000000	0.000000	0.850000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dinitrophenol	51285	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Pentachlorophenol	87865	0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Phenol	108952	0.000000	0.000000	1,700.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4,6-Trichlorophenol	88062	0.000000	0.000000	0.002400	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acenaphthene	83329	0.000000	0.000000	0.990000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Anthracene	120127	0.000000	0.000000	40.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzidine	92875	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(a)anthracene	56553	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(a)pyrene	50328	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(k)fluoranthene	205992	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-chloroisopropyl)ether	108601	0.000000	0.000000	65.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-ethylhexyl)phthalate	117817	0.000000	0.000000	0.002200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Butylbenzyl phthalate	85687	0.000000	0.000000	1.900000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-Chloronaphthalene	91587	0.000000	0.000000	1.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chrysene	218019	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dibenzo(a,h)anthracene	53703	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichlorobenzene	95501	0.000000	0.000000	17.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,3-Dichlorobenzene	541731	0.000000	0.000000	0.960000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,4-Dichlorobenzene	106467	0.000000	0.000000	2.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
3,3-Dichlorobenzidine	91941	0.000000	0.000000	0.000028	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Diethyl phthalate	84662	0.000000	0.000000	44.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dimethyl phthalate	131113	0.000000	0.000000	1,100.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Di-n-butyl phthalate	84742	0.000000	0.000000	4.500000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dinitrotoluene	121142	0.000000	0.000000	0.003400	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Diphenylhydrazine	122667	0.000000	0.000000	0.000200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Fluoranthene	206440	0.000000	0.000000	0.140000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Fluorene	86737	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorobenzene	118741	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorobutadiene	87683	0.000000	0.000000	0.018000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorocyclopentadiene	77474	0.000000	0.000000	17.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachloroethane	67721	0.000000	0.000000	0.003300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Ideno(1,2,3-cd)pyrene	193395	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Isophorone	78591	0.000000	0.000000	0.960000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Nitrobenzene	98953	0.000000	0.000000	0.690000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodimethylamine	62759	0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodi-n-Propylamine	621647	0.000000	0.000000	0.000510	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

# STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 004

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
N-Nitrosodiphenylamine	86306	0.000000	0.000000	0.006000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Pyrene	129000	0.000000	0.000000	4.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2,4-Trichlorobenzene	120821	0.000000	0.000000	0.940000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Aldrin	309002	0.000000	0.000000	0.000000	0.003000	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
alpha-BHC	319846	0.000000	0.000000	0.000005	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Beta-BHC	319857	0.000000	0.000000	0.000017	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
gamma-BHC (Lindane)	58899	0.000000	0.000000	0.000063	0.000950	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Chlordane	57749	0.000000	0.000000	0.000001	0.002400	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
4,4'-DDT	50293	0.000000	0.000000	0.000000	0.001100	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
4,4'-DDE	72559	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
4,4'-DDD	72548	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dieldrin	60571	0.000000	0.000000	0.000000	0.000240	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Alpha-Endosulfan	959988	0.000000	0.000000	0.000056	0.000220	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Beta-Endosulfan	33213659	0.000000	0.000000	0.000056	0.000220	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Endosulfan sulfate	1031078	0.000000	0.000000	0.089000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Endrin	72208	0.000000	0.000000	0.000036	0.000086	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Endrin aldehyde	7421934	0.000000	0.000000	0.000300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Heptachlor	76448	0.000000	0.000000	0.000000	0.000520	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Heptachlor epoxide	1024573	0.000000	0.000000	0.000000	0.000520	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Polychlorinated Biphenyls (PCBs)		0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Toxaphene	8001352	0.000000	0.000000	0.000000	0.000730	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
1,2,4,5-Tetrachlorobenzene	95943	0.000000	0.000000	0.001100	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-methyl-4,6-dinitrophenol	534521	0.000000	0.000000	0.280000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-D	94757	0.000000	0.000000	1,173.780222	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,5-TP (Silvex)	93721	0.000000	0.000000	20.107778	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,5-trichlorophenol	95954	0.000000	0.000000	3.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Asbestos	1332214	0.000000	0.000000	117,378,022.222222	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Benzo(b)fluoranthene	205992	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-chloroethyl)ether	111444	0.000000	0.000000	0.000530	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(chloromethyl)ether	542881	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chloropyrifos	2921882	0.000000	0.000000	0.000041	0.000083	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Chromium (III)	16065831	0.000000	0.000000	0.246046	5.147772	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Chromium (VI)	18540299	0.000000	0.000000	0.011000	0.016000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Demeton	8065483	0.000000	0.000000	0.000100	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Dinitrophenols	25550587	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Guthion	86500	0.000000	0.000000	0.000010	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Hexachlorocyclo-hexane-Technical	319868	0.000000	0.000000	0.000041	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hydrogen Sulfide, Undissociated	7783064	0.000000	0.000000	0.002000	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Malathion	121755	0.000000	0.000000	0.000100	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Methoxychlor	72435	0.000000	0.000000	0.000030	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Mirex	2385855	0.000000	0.000000	0.000001	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Nitrosamines, Other		0.000000	0.000000	0.001240	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodibutylamine	924163	0.000000	0.000000	0.000220	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodiethylamine	55185	0.000000	0.000000	0.001240	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosopyrrolidine	930552	0.000000	0.000000	0.034000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

# STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 004

<u>Parameter</u>	<u>CAS Number</u>	<u>Reported Discharge (mg/l)</u>		<u>Calculated Effluent Limitations (mg/l)</u>		<u>Reasonable Potential</u>		<u>Data Source</u>	<u>No. of Samples</u>	<u>Effluent Requirement</u>		<u>Justification</u>	
		<u>Average</u>	<u>Maximum</u>	<u>Average</u>	<u>Maximum</u>	<u>Average</u>	<u>Maximum</u>			<u>Average</u>	<u>Maximum</u>	<u>Average</u>	<u>Maximum</u>
Parathion	56382	0.000000	0.000000	0.000013	0.000065	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Pentachlorobenzene	608935	0.000000	0.000000	0.001500	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Phthalate esters		0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Total Dissolved Solids		0.000000	0.000000	1,508,083.333333	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Tritium		0.000000	0.000000	NA	20,000.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Strontium-90		0.000000	0.000000	NA	8.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Uranium		0.000000	0.000000	NA	0.030000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Ammonia		0.000000	0.000000	3.360911	19.890204	0.00%	0.00%	No Data	0	None	None	Chronic	Acute

Hardness  
 Metal limitations are developed using the mixed hardness of the effluent and receiving waters

Chronic  
 360.00

Acute  
 360.00

## Toxicity

<u>Type of Test</u>	<u>Maximum</u>	<u>Units</u>	<u>Justification</u>	<u>Percent Effluent</u>
Chronic	1.00	TUc	Chronic	100.00%

# KPDES



## KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

# PERMIT

PERMIT NO.: KY0091782  
AI NO.: 3013

### AUTHORIZATION TO DISCHARGE UNDER THE KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

Pursuant to Authority in KRS 224,

Mason County Fiscal Court  
219 Stanley Reed Court  
Maysville, Kentucky 41056

is authorized to discharge from a facility located at

Maysville-Mason County Landfill  
7055 Clarkson-Sherman Road  
Maysville, Mason County, Kentucky 41056

to receiving waters named

Outfalls 00A, 002 through 008 - Middle Run to North Fork of Licking River  
between mile points 0.85 and 1.9.  
Outfall 009 - Unnamed tributary to Stone Lick Branch at mile point 0.6.

in accordance with effluent limitations, monitoring requirements, and other conditions set forth in PARTS I, II, III, and IV hereof. The permit consists of this cover sheet, and PART I 2 pages, PART II 6 pages, PART III 1 page, PART IV 3 pages, and PART V 3 pages.

This permit shall become effective on

This permit and the authorization to discharge shall expire at midnight,

---

Date Signed

---

Sandra L. Gruzesky, Director  
Division of Water

DEPARTMENT FOR ENVIRONMENTAL PROTECTION

Division of Water, Frankfort Office Park, 14 Reilly Road, Frankfort, Kentucky 40601

Printed on Recycled Paper

# **A1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 00A and 002 - Storm water runoffs from covered areas of solid waste landfill.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTICS</u>	<u>DISCHARGE LIMITATIONS</u>				<u>MONITORING REQUIREMENTS</u>	
	(lbs/day)		Other Units(Specify)		Measurement	Sample
	Monthly	Daily	Monthly	Daily	Frequency	Type
	Avg.	Max.	Avg.	Max.		
Flow (MGD)	Report	Report	N/A	N/A	1/Month	Instantaneous
Total Suspended Solids (mg/l)	N/A	N/A	N/A	100	1/Month	Grab
Total Recoverable Iron	N/A	N/A	N/A	4.0 mg/l	1/Month	Grab
Chlorides (mg/l)	N/A	N/A	N/A	Report	1/Month	Grab
BOD <sub>5</sub> (mg/l)	N/A	N/A	N/A	Report	1/Month	Grab
Total Recoverable Antimony (µg/l)	N/A	N/A	N/A	Report <u>1</u> /	1/Quarter	Grab
Total Recoverable Arsenic (µg/l)	N/A	N/A	N/A	Report <u>1</u> /	1/Quarter	Grab
Total Recoverable Beryllium (µg/l)	N/A	N/A	N/A	Report <u>1</u> /	1/Quarter	Grab
Total Recoverable Cadmium (µg/l)	N/A	N/A	N/A	Report <u>1</u> /	1/Quarter	Grab
Total Recoverable Chromium (µg/l)	N/A	N/A	N/A	Report <u>1</u> /	1/Quarter	Grab
Total Recoverable Copper (µg/l)	N/A	N/A	N/A	Report <u>1</u> /	1/Quarter	Grab
Total Recoverable Lead (µg/l)	N/A	N/A	N/A	Report <u>1</u> /	1/Quarter	Grab
Total Recoverable Nickel (µg/l)	N/A	N/A	N/A	Report <u>1</u> /	1/Quarter	Grab
Total Recoverable Selenium (µg/l)	N/A	N/A	N/A	Report <u>1</u> /	1/Quarter	Grab
Total Recoverable Thallium (µg/l)	N/A	N/A	N/A	Report <u>1</u> /	1/Quarter	Grab
Total Recoverable Zinc (mg/l)	N/A	N/A	N/A	Report <u>1</u> /	1/Quarter	Grab
Total Purgeable (µg/l) <u>2</u> /	N/A	N/A	N/A	Report <u>1</u> /	1/Quarter	Grab
Hardness (mg/l)	N/A	N/A	N/A	Report	1/Quarter	Grab

- The pH of the effluent shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/Month by grab sample.
- There shall be no discharge of floating solids, visible foam, or sheen in other than trace amounts.
- Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters.
- The abbreviation N/A means Not Applicable.

1/ The laboratory sheets reporting the results of each parameter shall be submitted with the Discharge Monitoring Reports (DMRs).

2/ The results of those parameters analyzable using EPA Method 624. See Pages I-7 for the list of parameters.

**THIS PERMIT DOES NOT AUTHORIZE THE DISCHARGE OF LEACHATE FROM OUTFALLS 00A AND 002**

## A2. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 003 - Storm water runoffs from covered areas of solid waste landfill.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTICS</u>	<u>DISCHARGE LIMITATIONS</u>				<u>MONITORING REQUIREMENTS</u>	
	(lbs/day)		Other Units(Specify)		<u>Measurement Frequency</u>	<u>Sample Type</u>
	<u>Monthly Avg.</u>	<u>Daily Max.</u>	<u>Monthly Avg.</u>	<u>Daily Max.</u>		
Flow (MGD)	Report	Report	N/A	N/A	1/Month	Instantaneous
Total Suspended Solids (mg/l)	N/A	N/A	N/A	100	1/Month	Grab
Total Recoverable Iron	N/A	N/A	N/A	Report	1/Month	Grab
BOD <sub>5</sub> (mg/l)	N/A	N/A	N/A	Report	1/Month	Grab
Total Recoverable Cadmium (µg/l)	N/A	N/A	N/A	Report <u>1/</u>	1/Month	Grab
Total Purgeable (µg/l) <u>2/</u>	N/A	N/A	N/A	Report <u>1/</u>	1/Quarter	Grab
Hardness (mg/l)	N/A	N/A	N/A	Report	1/Quarter	Grab

- The pH of the effluent shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/Month by grab sample.
- There shall be no discharge of floating solids, visible foam, or sheen in other than trace amounts.
- Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters.
- The abbreviation N/A means Not Applicable.

1/ The laboratory sheets reporting the results of each parameter shall be submitted with the Discharge Monitoring Reports (DMRs).

2/ The results of those parameters analyzable using EPA Method 624. See Pages I-7 for the list of parameters.

**THIS PERMIT DOES NOT AUTHORIZE THE DISCHARGE OF LEACHATE FROM OUTFALL 003**

### A3. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 004 - Storm water runoffs from covered areas of solid waste landfill.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTICS</u>	<u>DISCHARGE LIMITATIONS</u>				<u>MONITORING REQUIREMENTS</u>	
	(lbs/day)		Other Units(Specify)		<u>Measurement Frequency</u>	<u>Sample Type</u>
	<u>Monthly Avg.</u>	<u>Daily Max.</u>	<u>Monthly Avg.</u>	<u>Daily Max.</u>		
Flow (MGD)	Report	Report	N/A	N/A	1/Month	Instantaneous
Total Suspended Solids (mg/l)	N/A	N/A	N/A	100	1/Month	Grab
Total Recoverable Iron (mg/l)	N/A	N/A	N/A	4.0	1/Month	Grab
Chlorides (mg/l)	N/A	N/A	N/A	Report	1/Month	Grab
BOD <sub>5</sub> (mg/l)	N/A	N/A	N/A	Report	1/Month	Grab
Total Recoverable Cadmium (µg/l)	N/A	N/A	N/A	Report <u>1/</u>	1/Month	Grab
Total Recoverable Zinc (mg/l)	N/A	N/A	N/A	Report <u>1/</u>	1/Month	Grab
Total Purgeable (µg/l) <u>2/</u>	N/A	N/A	N/A	Report <u>1/</u>	1/Quarter	Grab
Hardness (mg/l)	N/A	N/A	N/A	Report	1/Quarter	Grab

- The pH of the effluent shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/Month by grab sample.
- There shall be no discharge of floating solids, visible foam, or sheen in other than trace amounts.
- Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters.
- The abbreviation N/A means Not Applicable.

1/ The laboratory sheets reporting the results of each parameter shall be submitted with the Discharge Monitoring Reports (DMRs).

2/ The results of those parameters analyzable using EPA Method 624. See Pages I-7 for the list of parameters.

THIS PERMIT DOES NOT AUTHORIZE THE DISCHARGE OF LEACHATE FROM OUTFALL 004



#### A4. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 005 - Storm water runoffs from covered areas of solid waste landfill.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTICS</u>	<u>DISCHARGE LIMITATIONS</u>				<u>MONITORING REQUIREMENTS</u>	
	(lbs/day)		Other Units (Specify)		<u>Measurement Frequency</u>	<u>Sample Type</u>
	<u>Monthly Avg.</u>	<u>Daily Max.</u>	<u>Monthly Avg.</u>	<u>Daily Max.</u>		
Flow (MGD)	Report	Report	N/A	N/A	1/Month	Instantaneous
Total Suspended Solids	N/A	N/A	N/A	100 mg/l	1/Month	Grab
BOD <sub>5</sub> (mg/l)	N/A	N/A	N/A	Report	1/Month	Grab
Total Recoverable Iron (mg/l)	N/A	N/A	N/A	Report	1/Month	Grab
Total Recoverable Cadmium (µg/l)	N/A	N/A	N/A	Report <u>2</u> /	1/Month	Grab
Total Recoverable Arsenic (µg/l)	N/A	N/A	N/A	Report <u>2</u> /	1/Quarter	Grab
Total Recoverable Antimony (µg/l)	N/A	N/A	N/A	Report <u>2</u> /	1/Quarter	Grab
Total Recoverable Chromium (µg/l)	N/A	N/A	N/A	Report <u>2</u> /	1/Quarter	Grab
Total Recoverable Copper (µg/l)	N/A	N/A	N/A	Report <u>2</u> /	1/Quarter	Grab
Total Recoverable Lead (µg/l)	N/A	N/A	N/A	Report <u>2</u> /	1/Quarter	Grab
Total Recoverable Nickel (µg/l)	N/A	N/A	N/A	Report <u>2</u> /	1/Quarter	Grab
Total Recoverable Selenium (µg/l)	N/A	N/A	N/A	Report <u>2</u> /	1/Quarter	Grab
Total Recoverable Mercury (µg/l)	N/A	N/A	N/A	Report <u>2</u> /	1/Quarter	Grab
Total Recoverable Silver (µg/l)	N/A	N/A	N/A	Report <u>2</u> /	1/Quarter	Grab
Total Recoverable Thallium (µg/l)	N/A	N/A	N/A	Report <u>2</u> /	1/Quarter	Grab
Total Recoverable Zinc (µg/l)	N/A	N/A	N/A	Report <u>2</u> /	1/Quarter	Grab
Hardness (as mg/l CaCO <sub>3</sub> )	N/A	N/A	N/A	Report <u>2</u> /	1/Quarter	Grab
Total Purgeable Halocarbons (µg/l)	N/A	N/A	N/A	Report <u>1</u> / <u>2</u> /	2/Year	Grab

- The pH of the effluent shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/Month by grab sample.
  - There shall be no discharge of floating solids, visible foam, or sheen in other than trace amounts.
  - Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters.
  - The abbreviation N/A means Not Applicable.
- 1/ The results of those parameters analyzable using EPA Method 624. See Pages I-7 for the list of parameters.  
2/ The laboratory sheets reporting the results of each parameter shall be submitted with the Discharge Monitoring Reports (DMRs).

**THIS PERMIT DOES NOT AUTHORIZE THE DISCHARGE OF LEACHATE FROM OUTFALL 005**

#### A5. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 006, 007 and 008 - Storm water runoffs from covered areas of solid waste landfill.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTICS</u>	<u>DISCHARGE LIMITATIONS</u>				<u>MONITORING REQUIREMENTS</u>	
	(lbs/day)		Other Units (Specify)		Measurement	Sample
	Monthly	Daily	Monthly	Daily	Frequency	Type
	<u>Avg.</u>	<u>Max.</u>	<u>Avg.</u>	<u>Max.</u>		
Flow (MGD)	Report	Report	N/A	N/A	1/Month	Instantaneous
Total Suspended Solids	N/A	N/A	N/A	100 mg/l	1/Month	Grab
BOD <sub>5</sub> (mg/l)	N/A	N/A	N/A	Report	1/Month	Grab
Total Recoverable Iron (mg/l)	N/A	N/A	N/A	Report	1/Month	Grab
Total Recoverable Arsenic (µg/l)	N/A	N/A	N/A	Report <u>2/</u>	1/Quarter	Grab
Total Recoverable Antimony (µg/l)	N/A	N/A	N/A	Report <u>2/</u>	1/Quarter	Grab
Total Recoverable Beryllium (µg/l)	N/A	N/A	N/A	Report <u>2/</u>	1/Quarter	Grab
Total Recoverable Cadmium (µg/l)	N/A	N/A	N/A	Report <u>2/</u>	1/Quarter	Grab
Total Recoverable Chromium (µg/l)	N/A	N/A	N/A	Report <u>2/</u>	1/Quarter	Grab
Total Recoverable Copper (µg/l)	N/A	N/A	N/A	Report <u>2/</u>	1/Quarter	Grab
Total Recoverable Lead (µg/l)	N/A	N/A	N/A	Report <u>2/</u>	1/Quarter	Grab
Total Recoverable Nickel (µg/l)	N/A	N/A	N/A	Report <u>2/</u>	1/Quarter	Grab
Total Recoverable Selenium (µg/l)	N/A	N/A	N/A	Report <u>2/</u>	1/Quarter	Grab
Total Recoverable Thallium (µg/l)	N/A	N/A	N/A	Report <u>2/</u>	1/Quarter	Grab
Total Recoverable Zinc (µg/l)	N/A	N/A	N/A	Report <u>2/</u>	1/Quarter	Grab
Hardness (as mg/l CaCO <sub>3</sub> )	N/A	N/A	N/A	Report <u>2/</u>	1/Quarter	Grab

- The pH of the effluent shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/Month by grab sample.
- There shall be no discharge of floating solids, visible foam, or sheen in other than trace amounts.
- Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters.
- The abbreviation N/A means Not Applicable.

2/ The laboratory sheets reporting the results of each parameter shall be submitted with the Discharge Monitoring Reports (DMRs).

**THIS PERMIT DOES NOT AUTHORIZE THE DISCHARGE OF LEACHATE FROM OUTFALLS 006, 007 AND 008.**

# **A6. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 009 - Site produced leachate.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTICS</u>	<u>DISCHARGE LIMITATIONS</u>				<u>MONITORING REQUIREMENTS</u>	
	(lbs/day)		Other Units (Specify)		<u>Measurement Frequency</u>	<u>Sample Type</u>
	<u>Monthly Avg.</u>	<u>Daily Max.</u>	<u>Monthly Avg.</u>	<u>Daily Max.</u>		
Flow (MGD)	Report	Report	N/A	N/A	1/Discharge	Instantaneous
Total Suspended Solids	N/A	N/A	27 mg/l	88 mg/l	1/Discharge	Grab
BOD <sub>5</sub>	N/A	N/A	37 mg/l	140 mg/l	1/Discharge	Grab
Alpha-Terpineol	N/A	N/A	0.016 mg/l	0.033 mg/l	1/Discharge	Grab
Ammonia (as N)	N/A	N/A	4.9 mg/l	10 mg/l	1/Discharge	Grab
Benzoic acid	N/A	N/A	0.071 mg/l	0.12 mg/l	1/Discharge	Grab
P-Cresol	N/A	N/A	0.014 mg/l	0.025 mg/l	1/Discharge	Grab
Phenol	N/A	N/A	0.015 mg/l	0.026 mg/l	1/Discharge	Grab
Total Zinc	N/A	N/A	0.11 mg/l	0.20 mg/l	1/Discharge	Grab
Chronic Toxicity	N/A	N/A	N/A	1.0 TU <sub>c</sub>	1/Discharge	Grab
Dissolved Oxygen (minimum)	N/A	N/A	7 mg/l	N/A	1/Discharge	Grab
Total Purgeables (µg/l) <u>2/</u>	N/A	N/A	N/A	Report <u>1/</u>	1/Month	Grab
Hardness (as mg/l CaCO <sub>3</sub> )	N/A	N/A	N/A	Report	1/Month	Grab

- The pH of the effluent shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/Discharge by grab sample.
- There shall be no discharge of floating solids, visible foam, or sheen in other than trace amounts.
- Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters.
- The abbreviation N/A means Not Applicable.

1/ The results of those parameters analyzable using EPA Method 624. See Pages I-7 for the list of parameters.

2/ The laboratory sheets reporting the results of each parameter shall be submitted with the Discharge Monitoring Reports (DMRs).



**B. SCHEDULE OF COMPLIANCE**

The permittee shall achieve compliance with all requirements on the effective date of this permit.

**C. Purgeables - EPA Method 624**

Benzene  
Bromodichloromethane  
Bromoform  
Bromomethane  
Carbon tetrachloride  
Chlorobenzene  
Chloroethane  
2-Chloroethylvinyl ether  
Chloroform  
Chloromethane  
Dibromochloromethane  
1,2-Dichlorobenzene  
1,3-Dichlorobenzene  
1,4-Dichlorobenzene  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,1-Dichloroethene  
trans-1,2-Dichloroethene  
1,2-Dichloropropane  
cis-1,3-Dichloropropene  
trans-1,3-Dichloropropene  
Ethyl benzene  
Methylene chloride  
1,1,2,2-Tetrachloroethane  
Tetrachloroethene  
Toluene  
1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
Trichloroethene  
Trichlorofluoromethane  
Vinyl chloride

### **STANDARD CONDITIONS FOR KPDES PERMIT**

This permit has been issued under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits or licenses required by this Cabinet and other state, federal, and local agencies.

It is the responsibility of the permittee to demonstrate compliance with permit parameter limitations by utilization of sufficiently sensitive analytical methods.

The following KPDES permit conditions apply to all discharges authorized by this permit pursuant to 401 KAR 5:065, Section 1.

**(1) Duty to comply.**

**(a) General requirement.**

The permittee shall comply with all conditions of this permit. Any permit noncompliance shall constitute a violation of KRS Chapter 224, among which shall be the following remedies: enforcement action, permit revocation, revocation and reissuance, or modification; or denial of a permit renewal application.

**(b) Specific duties.**

1. The permittee shall comply with effluent standards or prohibitions established under 40 CFR Part 129 as of July 1, 2001, as adopted without change, within the time provided in the federal regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.
2. Any person who violates a permit condition as set forth in the KPDES administrative regulations shall be subject to penalties under KRS 224.99-010(1) and (4).

**(2) Duty to reapply.**

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall apply for and obtain a new permit as required in 401 KAR 5:060, Section 1.

**(3) Need to halt or reduce activity not a defense.**

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

**(4) Duty to mitigate.**

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

**(5) Proper operation and maintenance.**

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control and related appurtenances which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also shall include adequate laboratory controls, and appropriate quality assurance procedures. This provision shall require the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only if the operation is necessary to achieve compliance with the conditions of the permit.

**(6) Permit actions.**

The permit may be modified, revoked and reissued, or revoked for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or a notification of planned changes or anticipated noncompliance, shall not stay any permit condition.

**(7) Property rights.**

This permit shall not convey any property rights of any kind, or any exclusive privilege.

**(8) Duty to provide information.**

The permittee shall furnish to the cabinet, within a reasonable time, any information which the cabinet may request to determine whether cause exists for modifying, revoking and reissuing, or revoking this permit, or to determine compliance with this permit. The permittee shall also furnish to the cabinet, upon request, copies of records required to be kept by this permit.

**(9) Inspection and entry.**

The permittee shall allow the cabinet, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

- (a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records pertinent to the KPDES program are or may be kept;
- (b) Have access to and copy, at reasonable times, any records that are required to be kept under the conditions of this permit;
- (c) Inspect at reasonable times any facilities, equipment, including monitoring and control equipment, practices, or operations regulated or required under this permit; and
- (d) Sample or monitor at reasonable times, for the purposes of assuring KPDES program compliance or as otherwise authorized by KRS Chapter 224, any substances or parameters at any location.

**(10) Monitoring and records.**

- (a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
- (b) The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report, or application. This period may be extended by request of the cabinet at any time.
- (c) Records of monitoring information shall include:
  - 1. The date, exact place, and time of sampling or measurements;
  - 2. The individuals who performed the sampling or measurements;
  - 3. The dates analyses were performed;
  - 4. The individuals who performed the analyses;
  - 5. The analytical techniques or methods used; and
  - 6. The results of the analyses.
- (d) Monitoring shall be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in the permit.
- (e) Any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under the permit shall, upon conviction, be subject to penalties under KRS 224.99-010(4).

**(11) Signatory requirement.**

All applications, reports, or information submitted to the cabinet shall be signed and certified as indicated in 401 KAR 5:060, Section 9. Any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be subject to penalties under KRS 224.99-010(4).

**(12) Reporting requirements.**

**(a) Planned changes.**

The permittee shall give notice to the cabinet as soon as possible of any planned physical alteration or additions to the permitted facility. Notice shall be required only if:

1. The alteration or addition to a permitted facility may meet one (1) of the criteria for determining whether a facility is a new source in 401 KAR 5:080, Section 5; or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification only applies to pollutants which are subject either to effluent limitations in the permit, or to notification requirements under 401 KAR 5:080, Section 5.

**(b) Anticipated noncompliance.**

The permittee shall give advance notice to the cabinet of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

**(c) Transfers.**

The permit shall not be transferable to any person except after notice to the cabinet. The cabinet may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate other requirements as may be necessary under KRS Chapter 224.

**(d) Monitoring reports.**

Monitoring results shall be reported at the intervals specified in the permit. Monitoring results shall be reported as follows:

1. Monitoring results shall be reported on a Discharge Monitoring Report (DMR).
2. If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR Part 136 or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.
3. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the cabinet in the permit.

**(e) Compliance schedules.**

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than fourteen (14) days following each schedule date.



**(f) Twenty-four (24) hour reporting.**

The permittee shall follow the provisions of 401 KAR 5:015 and shall orally report any noncompliance which may endanger health or the environment, within twenty-four (24) hours from the time the permittee becomes aware of the circumstances. This report shall be in addition to and not in lieu of any other reporting requirement applicable to the noncompliance. A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The cabinet may waive the written report on a case-by-case basis if the oral report has been received within twenty-four (24) hours. The following shall be included as events which shall be reported within twenty-four (24) hours:

1. Any unanticipated bypass which exceeds any effluent limitation in the permit, as indicated in subsection (13) of this section.
2. Any upset which exceeds any effluent limitation in the permit.
3. Violation of a maximum daily discharge limitation for any of the pollutants listed by the cabinet in the permit to be reported within twenty-four (24) hours, as indicated in Section 2(7) of this administrative regulation.

**(g) Other noncompliance.**

The permittee shall report all instances of noncompliance not reported under paragraphs (d), (e), and (f) of this subsection, when monitoring reports are submitted. The reports shall contain the information listed in paragraph (f) of this subsection.

**(h) Other information.**

Where the permittee becomes aware that it failed to submit any relevant fact in a permit application, or submitted incorrect information in a permit application or in any report to the cabinet, it shall promptly submit these facts or information.

**(13) Occurrence of a bypass.**

**(a) Bypass not exceeding limitations.**

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. This type of bypass shall not be subject to the provisions of paragraphs (b) and (c) of this subsection.

**(b) Notice.**

**1. Anticipated bypass.**

If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten (10) days before the date of the bypass. Compliance with this requirement constitutes compliance with 401 KAR 5:015, Section 1.

2. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in subsection (12)(f) of this section, twenty-four (24) hour notice. Compliance with this requirement constitutes compliance with 401 KAR 5:015, Section 4.

**(c) Prohibition of a bypass.**

1. Bypassing shall be prohibited, and the cabinet may take enforcement action against a permittee for bypass, unless:
  - a. The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
  - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition shall not be satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
  - c. The permittee submitted notices as required under paragraph (b) of this subsection.
2. The cabinet may approve an anticipated bypass, after considering its adverse effects, if the cabinet determines that it will meet the three (3) conditions listed in subparagraph 1a, b, and c of this paragraph.

**(14) Occurrence of an upset.**

**(a) Effect of an upset.**

An upset constitutes an affirmative defense to an action brought for noncompliance with technology-based permit effluent limitations if the requirements of paragraph (b) of this subsection are met.

**(b) Conditions necessary for a demonstration of an upset.**

A permittee who wishes to establish the affirmative defense of upset shall demonstrate through properly signed, contemporaneous operating logs, or other relevant evidence that:

1. An upset occurred and that the permittee can identify the causes of the upset;
2. The permitted facility was at the time being properly operated;
3. The permittee submitted notice of the upset as required in subsection (12)(f) of this section; and
4. The permittee complied with any remedial measures required under subsection (4) of this section.

**(c) Burden of proof.**

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset shall have the burden of proof.

**(15) Additional conditions applicable to specified categories of KPDES permits.**

The following conditions, in addition to others set forth in this administrative regulation, shall apply to all KPDES permits within the categories specified below:

**(a) Existing manufacturing, commercial, mining, and silvicultural dischargers.**

In addition to the reporting requirements under subsections (12), (13), and (14) of this section, any existing manufacturing, commercial, mining, and silvicultural discharger shall notify the cabinet as soon as it knows or has reason to know:

1. That any activity has occurred or will occur which would result in the discharge on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"

- a. 100 micrograms per liter (100 µg/l);
- b. 200 micrograms per liter (200 µg/l) for acrolein and acrylonitrile; 500 micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one (1) milligram per liter (1 mg/l) for antimony;
- c. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 401 KAR 5:060, Section 2(7);
- d. The level established by the cabinet in accordance with Section 2(6) of this administrative regulation.

2. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"

- a. 500 micrograms per liter (500 µg/l);
- b. One (1) milligram per liter (1 mg/l) for antimony;
- c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 401 KAR 5:060, Section 2(7); or
- d. The level established by the cabinet in accordance with Section 2(6) of this administrative regulation.

**(b) POTWs.**

1. POTWs shall provide adequate notice to the cabinet of the following:

a. Any new introduction of pollutants into that POTW from an indirect discharger which would be subject to the KPDES administrative regulations if it were directly discharging those pollutants; or

b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

2. For purposes of this paragraph, adequate notice shall include information on the quality and quantity of effluent introduced into the POTWs and any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

### PART III

#### OTHER REQUIREMENTS

##### A. Reporting of Monitoring Results

Monitoring results obtained during each month must be reported on a preprinted Discharge Monitoring Report (DMR) Form which will be mailed to you. Each month's completed DMR must be sent to the Division of Water at the address listed below (with a copy to the appropriate Regional Office) postmarked no later than the 28th day of the month following the month for which monitoring results were obtained.

Division of Water  
Morehead Regional Office  
525 Hecks Plaza Drive  
Morehead, Kentucky 40351  
ATTN: Supervisor

Division of Water  
Surface Water Permits Branch  
Permit Support Section  
200 Fair Oaks Lane  
Frankfort, Kentucky 40601

##### B. Reopener Clause

This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under 401 KAR 5:050 through 5:086, if the effluent standard or limitation so issued or approved:

1. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
2. Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of KRS Chapter 224 when applicable.

##### C. Outfall Signage

The permittee shall post a permanent marker at all discharge locations and/or monitoring points. The marker shall be at least 2 feet by 2 feet in size and a minimum of 3 feet above ground level with the Permittee Name and KPDES permit and outfall numbers in 2 inch letters. For internal monitoring points the marker shall be of sufficient size to include the outfall number in 2 inch letters and shall be posted as near as possible to the actual sampling location.

##### D. Required Detected Limits For Selected Pollutants

The following MDLs are required to demonstrate compliance of the listed pollutant with water quality based limitations.

Pollutant	MDL (µg/l)	Pollutant	MDL(µg/l)
Total Recoverable Beryllium	1.0	Total Recoverable Selenium	1.0
Total Recoverable Antimony	10.0	Total Recoverable Arsenic	1.0
Total Recoverable Thallium	1.0	Total Recoverable Lead	1.0
Total Recoverable Nickel	10.0	Total Recoverable Copper	1.0
Total Recoverable Cadmium	0.1	Total Recoverable Chromium	10.0
Total Purgeable Halocarbons	0.03	Total Recoverable Zinc	10.0

## PART IV

### BEST MANAGEMENT PRACTICES

#### SECTION A. GENERAL CONDITIONS

1. Applicability

These conditions apply to all permittees who use, manufacture, store, handle, or discharge any pollutant listed as: (1) toxic under Section 307(a)(1) of the Clean Water Act; (2) oil, as defined in Section 311(a)(1) of the Act; (3) any pollutant listed as hazardous under Section 311 of the Act; or (4) is defined as a pollutant pursuant to KRS 224.01-010(35) and who have ancillary manufacturing operations which could result in (1) the release of a hazardous substance, pollutant, or contaminant, or (2) an environmental emergency, as defined in KRS 224.01-400, as amended, or any regulation promulgated pursuant thereto (hereinafter, the "BMP pollutants"). These operations include material storage areas; plant site runoff; in-plant transfer, process and material handling areas; loading and unloading operations, and sludge and waste disposal areas.

2. BMP Plan

The permittee shall develop and implement a Best Management Practices (BMP) plan consistent with 401 KAR 5:065, Section 2(10) pursuant to KRS 224.70-110, which prevents or minimizes the potential for the release of "BMP pollutants" from ancillary activities through plant site runoff; spillage or leaks, sludge or waste disposal; or drainage from raw material storage. A Best Management Practices (BMP) plan will be prepared by the permittee unless the permittee can demonstrate through the submission of a BMP outline that the elements and intent of the BMP have been fulfilled through the use of existing plans such as the Spill Prevention Control and Countermeasure (SPCC) plans, contingency plans, and other applicable documents.

3. Implementation

If this is the first time for the BMP requirement, then the plan shall be developed and submitted to the Division of Water within 90 days of the effective date of the permit. Implementation shall be within 180 days of that submission. For permit renewals the plan in effect at the time of permit reissuance shall remain in effect. Modifications to the plan as a result of ineffectiveness or plan changes to the facility shall be submitted to the Division of Water and implemented as soon as possible.

4. General Requirements

The BMP plan shall:

- a. Be documented in narrative form, and shall include any necessary plot plans, drawings, or maps.
- b. Establish specific objectives for the control of toxic and hazardous pollutants.
  - (1) Each facility component or system shall be examined for its potential for causing a release of "BMP pollutants" due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc.

- (2) Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural condition (e.g., precipitation), or other circumstances which could result in a release of "BMP pollutants," the plan should include a prediction of the direction, rate of flow, and total quantity of the pollutants which could be released from the facility as result of each condition or circumstance.
- c. Establish specific Best Management Practices to meet the objectives identified under paragraph b of this section, addressing each component or system capable of causing a release of "BMP pollutants."
- d. Include any special conditions established in part b of this section.
- e. Be reviewed by plant engineering staff and the plant manager.

5. Specific Requirements

The plan shall be consistent with the general guidance contained in the publication entitled "NPDES Best Management Practices Guidance Document," and shall include the following baseline BMPs as a minimum.

- a. BMP Committee
- b. Reporting of BMP Incidents
- c. Risk Identification and Assessment
- d. Employee Training
- e. Inspections and Records
- f. Preventive Maintenance
- g. Good Housekeeping
- h. Materials Compatibility
- i. Security
- j. Materials Inventory

6. SPCC Plans

The BMP plan may reflect requirements for Spill Prevention Control and Countermeasure (SPCC) plans under Section 311 of the Act and 40 CFR Part 151, and may incorporate any part of such plans into the BMP plan by reference.

7. Hazardous Waste Management

The permittee shall assure the proper management of solid and hazardous waste in accordance with the regulations promulgated under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1978 (RCRA) (40 U.S.C. 6901 et seq.) Management practices required under RCRA regulations shall be referenced in the BMP plan.

8. Documentation

The permittee shall maintain a description of the BMP plan at the facility and shall make the plan available to representatives of the Division of Water upon request. Copies of modified BMP Plans shall be submitted within thirty (30) days of completion to the following:

Division of Water  
Morehead Regional Office  
525 Hecks Plaza Drive  
Morehead, Kentucky 40351  
ATTN: Supervisor

Division of Water  
Surface Water Permits Branch  
Permit Support Section  
200 Fair Oaks Lane  
Frankfort, Kentucky 40601

9. BMP Plan Modification

The permittee shall amend the BMP plan whenever there is a change in the facility or change in the operation of the facility which materially increases the potential for the ancillary activities to result in the release of "BMP pollutants."

10. Modification for Ineffectiveness

If the BMP plan proves to be ineffective in achieving the general objective of preventing the release of "BMP pollutants," then the specific objectives and requirements under paragraphs b and c of Section 4, the permit, and/or the BMP plan shall be subject to modification to incorporate revised BMP requirements. If at any time following the issuance of this permit the BMP plan is found to be inadequate pursuant to a state or federal site inspection or plan review, the plan shall be modified to incorporate such changes necessary to resolve the concerns.

SECTION B. SPECIFIC CONDITIONS

N/A

## PART V - BIOMONITORING - CHRONIC CONCERNS

In accordance with PART I of this permit, the permittee shall initiate, within 30 days of the effective date of this permit, or continue the series of tests described below to evaluate wastewater toxicity of the discharge from Outfall .

### TEST REQUIREMENTS

The permittee shall perform one short-term static-renewal fathead minnow (Pimephales promelas) growth test and one short-term static-renewal water flea (Ceriodaphnia dubia) life-cycle test. Tests shall be performed on a series of 24 hour composite samples collected as described in 1.B. below. In addition to use of a control, effluent concentrations for the tests must include the permitted limit, (i.e., **(percent)%** effluent) and at least four additional effluent concentrations. For a permit limit of 100% effluent, test concentrations shall be 20%, 40%, 60%, 80% and 100%. If the permit limit is less than 100% effluent and greater than or equal to 75% effluent, the test concentrations shall include the permitted limit, two concentrations below the limit that are based on a 0.5 dilution factor, and two concentrations above the limit (to include 100% and mid-point between the permit limit and 100%). If the permit limit is less than 75% effluent, test concentrations shall include the permit limit concentration, two concentrations below the limit based on a 0.5 dilution factor, and two concentrations above the limit based on a 0.5 dilution factor if possible, otherwise to include 100% and mid-point between the permit limit and 100% . Selection of different effluent concentrations must be approved by the Division prior to testing. Testing of the effluent shall be initiated within 36 hours of completing each 24 hour composite sample. Controls shall be tested concurrently with effluent testing using synthetic water. The analysis will be deemed reasonable and good only if the minimum control requirements are met, (i.e. For the Ceriodaphnia test: at least 80% survival of all control organisms and an average of 15 or more young per surviving female in the control solutions; and 60% of surviving control females must produce three broods. For the fathead minnow test: at least 80% survival in controls and the average dry weight per surviving organism in control chambers equals or exceeds 0.25 mg. Any test that does not meet the control acceptability criteria shall be repeated as soon as practicable within the monitoring period (i.e. monthly or quarterly). Noncompliance with the toxicity limit will be demonstrated if the IC<sub>25</sub> (inhibition concentration) for reproduction or growth is less than **100%** effluent

Tests shall be conducted on both species at the frequency specified in PART I of this permit.

A minimum of three 24 hour composite samples shall be collected at a frequency of one 24 hour composite every other day. For example, the first sample would be used for test initiation on day 1 and for test solution renewal on day 2. The second sample would be used for test solution renewal on days 3 and 4. The third sample would be used for test solution renewal on days 5, 6, and 7. Each 24 hour composite shall be collected using a refrigerated automatic sampler. Each 24 hour composite sample shall consist of not less than 48 discrete aliquots of effluent. Aliquots shall be of equal volume and time-proportional unless effluent flow is expected to vary by more than 10% from one hour to another or by 50% over the 24 hour collection period (as predicted from historical trends, significant rainfall events, etc.). With anticipated effluent flow variation of greater than 10% per hour or 50% overall, the frequency, and volume of each aliquot shall be flow-proportional. The lapsed time from collection of the last aliquot of the composite and its first use for test initiation or for test solution renewal shall not exceed 36 hours.



## **PART V - BIOMONITORING - CHRONIC CONCERNS**

### **TEST REQUIREMENTS**

Composite samples shall be refrigerated and maintained at not greater than 6°C during collection, storage, transport and until used in the test by the laboratory.

If after at least six consecutive toxicity tests, it can be determined that Ceriodaphnia dubia or the Fathead minnow is more sensitive and all tests have passed, a request for testing with only the most sensitive species can be submitted to the Division. Upon approval, that most sensitive species may be considered as representative and all subsequent compliance tests can be conducted using only that species unless directed at any time by the Division to change or revert to both.

### **REPORTING REQUIREMENTS**

Results of all toxicity tests conducted with any species shall be reported according to the most recent format provided by the Division of Water. Notification of failed test shall be made to the Division's Water Quality Branch within five days of test completion. Test reports shall be submitted to the Division's Water Quality Branch within thirty days of completion.

### **Chronic Toxicity**

If noncompliance with the toxicity limit occurs in an initial test, (i.e., the  $IC_{25}$  for reproduction of water fleas or growth of minnows is less than 100% effluent), the permittee must repeat the test using a new set of three 24 hour composite samples. Sampling must be initiated within 15 days of completing the failed test. The second round of testing shall include both species unless approved for only the most sensitive species by the Division. Results of the second round of testing will be used to evaluate the possible need for a Toxicity Reduction Evaluation (TRE).

If the second round of testing also demonstrates noncompliance with the toxicity limit, the permittee will be required to perform accelerated testing as specified in the following paragraphs.

Complete four additional rounds of testing to evaluate the frequency and degree of toxicity within 60 days of completing the second round of failed testing. Results of the initial and second rounds of testing specified above, plus the four additional rounds of testing will be used in deciding if a TRE shall be required.

If results from any two of the six rounds of testing show a significant noncompliance with the chronic limit (i.e.,  $\geq 1.2$  times the  $TU_c$ ), or results from any four of the six tests show chronic toxicity (as defined in 1.A), a TRE will be required.

The permittee shall provide written notification to the Division of Water within five (5) days of completing accelerated testing stating that: (1) toxicity persisted and that a TRE will be initiated; or (2) that toxicity did not persist and the normal testing will resume.

Should toxicity prove not to be persistent during the accelerated testing period, but reoccur within 12 months of the initial failure at a level  $\geq 1.2$  times the  $TU_c$ , then a TRE shall be required.

**PART V - BIOMONITORING - CHRONIC CONCERNS**

**TOXICITY REDUCTION EVALUATION (TRE)**

Having determined that a TRE is required, the permittee shall initiate &/or continue at least monthly testing with both species until such time as a specific TRE plan is approved by the Division. A TRE plan shall be developed by the permittee and submitted to the Division within thirty days of determining a TRE is required. The plan shall be developed in accordance with the most recent EPA and Division guidance.

Questions regarding this process may be submitted to the Division's Water Quality Branch.

The TRE plan shall include Toxic Identification Evaluation (TIE) procedures, treatability studies, and evaluations of: chemical usage including changes in types, handling and suppliers; operational and process procedures; housekeeping and maintenance activities; and raw materials. The TRE plan will establish an implementation schedule to begin immediately upon approval by the Division, to have duration of at least six months, and not to exceed 24 months. The implementation schedule shall include quarterly progress reports being submitted to the Division's Water Quality Branch, due the last day of the month following each calendar quarter.

Upon completion of the TRE, the permittee shall submit a final report detailing the findings of the TRE and actions taken or to be taken to prevent the reoccurrence of toxicity. This final report shall include: the toxicant(s), if any are identified; treatment options; operational changes; and the proposed resolutions including an implementation schedule not to exceed 180 days.

Should the permittee determine the toxicant(s) and/or a workable treatment prior to the planned conclusion of the TRE, the permittee will notify the Division's Water Quality Branch within five days of making that determination and take appropriate actions to implement the solution within 180 days of that notification.

**TEST METHODS**

All test organisms, procedures and quality assurance criteria used shall be in accordance with Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (Fourth Edition), EPA-821-R-02-013, the most recent edition of this publication, or as approved in advance by the Division of Water.

Toxicity testing for compliance to KPDES discharge limits shall be performed by a laboratory approved by the Division of Water to conduct the required toxicity tests.

Within each toxicity report to the Division of Water, the permittee must demonstrate successful performance of reference toxicant testing by the laboratory that conducts their effluent toxicity tests. Within 30 days prior to initiating an effluent toxicity test, a reference toxicant test must be completed for the method used; alternatively, the reference toxicant test may be run concurrent with the effluent toxicity test. In addition, for each test method, at least 5 acceptable reference toxicant tests must be completed by the laboratory prior to performing the effluent toxicity test. A control chart including the most recent reference toxicant test endpoints for the effluent test method (minimum of 5, up to 20 if available) shall be part of the report.